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March 2006

COMBATING NUCLEAR SMUGGLING

Corruption, Maintenance, and Coordination Problems Challenge U.S. Efforts to Provide Radiation Detection Equipment to Other Countries

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March 2006

COMBATING NUCLEAR SMUGGLING

Corruption, Maintenance, and Coordination Problems Challenge U.S. Efforts to Provide Radiation Detection Equipment to Other Countries

GAO Accountability·Integrity·Reliability

Highlights

Highlights of GAO-06-311, a report to congressional requesters

Why GAO Did This Study

According to the International Atomic Energy Agency, between 1993 and 2004, there were 662 confirmed cases of illicit trafficking in nuclear and radiological materials. Three U.S. agencies, the Departments of Energy (DOE), Defense (DOD), and State (State), have programs that provide radiation detection equipment and training to border security personnel in other countries. GAO examined the (1) progress U.S. programs have made in providing radiation detection equipment to foreign governments, including the current and expected costs of these programs; (2) challenges U.S. programs face in this effort; and (3) steps being taken to coordinate U.S. efforts to combat nuclear smuggling in other countries.

What GAO Recommends

GAO is making recommendations to the Secretaries of Energy and State to (1) integrate cost projections for anticorruption measures into long-term program cost estimates; (2) upgrade less sophisticated portal monitors; (3) provide maintenance for all handheld radiation detection equipment provided by U.S. programs; (4) revise the interagency strategic plan; and (5) compile, maintain, and share a master list of all U.S. radiation detection equipment assistance.

DOE and State generally agreed with our conclusions and recommendations. DOD did not provide comments on the report.

www.gao.gov/cgi-bin/getrpt?GAO-06-311.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Gene Aloise at (202) 512-5841 or aloisee@gao.gov.

What GAO Found

Since fiscal year 1994, DOE, DOD, and State have provided radiation detection equipment to 36 countries as part of the overall U.S. effort to combat nuclear smuggling. Through the end of fiscal year 2005, these agencies had spent about $178 million on this assistance through seven different programs. Primary among these programs is DOE's Second Line of Defense "Core" program, which has installed equipment mostly in Russia since 1998.

U.S. efforts to install and effectively operate radiation detection equipment in other countries face a number of challenges including: corruption of some foreign border security officials, technical limitations of some radiation detection equipment, inadequate maintenance of some equipment, and the lack of supporting infrastructure at some border sites. DOE, DOD, and State officials told us they are concerned that corrupt foreign border security personnel could compromise the effectiveness of U.S.-funded radiation detection equipment by either turning off equipment or ignoring alarms. In addition, State and other agencies have installed equipment at some sites that is less effective than equipment installed by DOE. Since 2002, DOE has maintained the equipment but has only upgraded one site. As a result, these border sites are more vulnerable to nuclear smuggling than sites with more sophisticated equipment. Further, while DOE assumed responsibility for maintaining most U.S.-funded equipment, some handheld equipment provided by State and DOD has not been maintained. Lastly, many border sites are located in remote areas that often lack infrastructure essential to operate radiation detection equipment.

As the lead interagency coordinator of all U.S. radiation detection equipment assistance overseas, State has taken some steps to coordinate U.S. efforts. However, its ability to carry out its role as lead coordinator is limited by shortcomings in the strategic plan for interagency coordination. Additionally, State has not maintained an interagency master list of all U.S.-funded radiation detection equipment overseas. Without such a list, program managers at DOE, DOD, and State cannot accurately assess if equipment is operational and being used as intended; determine the equipment needs of countries where they plan to provide assistance; or detect if an agency has unknowingly supplied duplicative equipment.

DOD-Funded Radiation Portal Monitor in Uzbekistan

Source: DOD.

Contents

Abbreviations

CRITr	Cooperative Radiological Instrument Transfer project
DHS	Department of Homeland Security
DNDO	Domestic Nuclear Detection Office
DOE	Department of Energy
DOD	Department of Defense
EXBS	Export Control and Related Border Security program
GBSLE	Georgia Border Security and Law Enforcement program
ICP	International Counterproliferation Program
IAEA	International Atomic Energy Agency
NDF	Nonproliferation and Disarmament Fund
NNSA	National Nuclear Security Administration
RIID	radioactive isotope identification device
SLD-Core	Second Line of Defense “Core” program
WMD	weapons of mass destruction
WMD-PPI	Weapons of Mass Destruction Proliferation Prevention Initiative

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United States Government Accountability Office
Washington, D.C. 20548

March 14, 2006

Congressional Requesters

According to the International Atomic Energy Agency, between 1993 and 2004, there were 662 confirmed cases of illicit trafficking in nuclear and radiological materials, and the number of reported cases has risen dramatically since 2002. Many of these cases involved material that could be used to produce either a nuclear weapon or a device that uses conventional explosives with radioactive material (known as a "dirty bomb," or radiological dispersal device). Especially in the aftermath of the attacks on September 11, 2001, there is heightened concern that terrorists may try to smuggle nuclear materials or a nuclear weapon into the United States. If terrorists were to accomplish this, the consequences could be devastating to our national and economic interests. In April 2004, the United Nations Security Council passed a resolution calling for every member state to put in place appropriate effective border controls and law enforcement to detect, deter, prevent, and combat the illicit trafficking and brokering in nuclear materials and other items related to weapons of mass destruction.[1]

In response to the growing concern about nuclear smuggling, three U.S. agencies, the Departments of Energy (DOE), Defense (DOD), and State (State), have programs that provide radiation detection equipment and related training to border security personnel and customs officials in other countries.[2] Initial concerns about the threat posed by nuclear smuggling were focused on nuclear materials originating in the former Soviet Union. As a result, the first major initiatives to combat nuclear smuggling concentrated on deploying radiation detection equipment at borders in countries of the former Soviet Union and in Eastern Europe. Beginning in the mid-1990s, DOD and State provided fixed radiation detection equipment, known as radiation portal monitors, and handheld radiation detection equipment to a number of countries in this region. In 1998, DOE

[1]See S.C.Res. 1540, U.N. Doc. S/RES/1540 (Apr. 28, 2004).

[2]In addition to DOE, DOD, and State's efforts to combat nuclear smuggling in other countries, the Department of Homeland Security (DHS) is installing radiation detection equipment at U.S. ports of entry. We recently reported on DHS's efforts in GAO, *Combating Nuclear Smuggling: DHS Has Made Progress Deploying Radiation Detection Equipment at U.S. Ports of Entry, but Concerns Remain*, GAO-06-389 (Washington, D.C.: Mar. 14, 2006).

established the Second Line of Defense "Core" (SLD-Core) program,[3] which has primarily worked to help Russia detect illicit nuclear materials trafficking by providing radiation detection equipment to the Federal Customs Service of Russia. In coordination with State, DOE, through its National Nuclear Security Administration,[4] has recently expanded its efforts in the SLD-Core program to include countries other than Russia, including installing radiation detection equipment at border sites in Greece as part of the overall U.S. effort to provide security assistance prior to the 2004 Olympic Games.[5] In addition to DOE's efforts through the SLD-Core program, six other programs—one at DOE, two at DOD, and three at State—have provided radiation detection equipment to assist foreign governments in combating nuclear smuggling. Further, State is the lead interagency coordinator of U.S. nuclear detection assistance overseas.

As agreed with your offices, this report addresses U.S. efforts to combat nuclear smuggling by examining (1) the progress U.S. programs have made in providing radiation detection equipment to foreign governments, including the current and expected costs of these programs; (2) the challenges U.S. programs face in deploying or operating radiation detection equipment in foreign countries; and (3) the steps being taken to coordinate U.S. efforts to combat nuclear smuggling in other countries. To address these objectives, we analyzed documentation on U.S. efforts to combat nuclear smuggling from DOE and its contractors, both at DOE's national laboratories and in the private sector; DOD and its contractors; State; and

[3]We originally reported on U.S. efforts to combat nuclear smuggling in 2002. For additional information, see GAO, *Nuclear Nonproliferation: U.S. Efforts to Help Other Countries Combat Nuclear Smuggling Need Strengthened Coordination and Planning*, GAO-02-426 (Washington, D.C.: May 16, 2002).

[4]The National Nuclear Security Administration is a separately organized agency within DOE that was created by the National Defense Authorization Act for Fiscal Year 2000, Pub. L. No. 106-65 (2000), with responsibility for the nation's nuclear weapons, nonproliferation, and naval reactors programs.

[5]Additionally, in 2003, DOE began implementing a related program, the Megaports Initiative, to focus on the threat posed by nuclear smuggling at major foreign seaports. We recently reported on this program; therefore, we will not address the Megaports Initiative in this report. For additional information, see GAO, *Preventing Nuclear Smuggling: DOE Has Made Limited Progress in Installing Radiation Detection Equipment at Highest Priority Foreign Seaports*, GAO-05-375 (Washington, D.C.: Mar. 31, 2005). Through January 2006, DOE had completed installations at four ports in Greece, the Netherlands, Sri Lanka, and the Bahamas. DOE anticipates completing an additional port in Spain in April 2006. DOE has signed agreements to begin work at ports in seven other countries (China, Honduras, Israel, Oman, the Philippines, Thailand, and the United Arab Emirates).

DHS and conducted interviews with key program officials at each of these agencies. We also visited six countries (Georgia, Greece, Macedonia, Russia, Ukraine, and Uzbekistan), where U.S. agencies have provided radiation detection equipment, to observe U.S.-funded radiation detection equipment in operation and to discuss the implementation of U.S. programs with foreign officials. In addition, we analyzed cost and budgetary information from DOE, DOD, State, and DHS; performed a data reliability assessment of this data; and interviewed knowledgeable agency officials on the reliability of the data. We determined these data were sufficiently reliable for the purposes of this report. More details on our scope and methodology can be found in appendix I. We conducted our review from April 2005 to February 2006 in accordance with generally accepted government auditing standards.

Results in Brief

Since fiscal year 1994, DOE, DOD, and State have provided radiation detection equipment to 36 countries as part of the overall U.S. effort to combat nuclear smuggling. Through the end of fiscal year 2005, these agencies had spent about $178 million on this assistance through seven different programs. Specifically, as of fiscal year 2005, DOE's SLD-Core program had completed installation of radiation portal monitors at 83 border sites in Russia, Greece, and Lithuania at a cost of about $130 million. DOE plans to install radiation detection equipment at a total of about 350 sites in 31 countries by 2012 at a total cost of about $570 million. A second DOE program has provided handheld radiation detection equipment to regulatory agencies and patrol officers in 9 countries at a cost of about $1 million. In addition to DOE's efforts, two DOD programs have spent about $22 million to provide radiation portal monitors, handheld equipment, and radiation detection training to 8 countries in the former Soviet Union and Eastern Europe. DOD plans to complete its Uzbekistan Portal Monitoring project in fiscal year 2009 at a total cost of about $54 million. Furthermore, DOD also plans to continue providing limited amounts of handheld radiation detection equipment to other countries in the future. Similarly, three Department of State programs have provided radiation detection equipment and training to 31 countries at a cost of about $25 million. However, future spending requirements for State's radiation detection assistance programs are uncertain, in part, because State's Export Control and Related Border Security program provides radiation detection equipment to foreign countries on an as needed basis as a part of its effort to increase export control enforcement in foreign countries. In coordination with DOE, this program also selectively funds more expensive radiation portal monitors to certain sites on a case-by-case

basis, such as at one site in Armenia, where State believes the imminence of a smuggling threat warranted immediate action.

U.S. efforts to provide radiation detection equipment to other countries face a number of challenges that can impact the effective operation of this equipment, including: possible corruption of border security officials in some countries, technical limitations of radiation detection equipment previously deployed by State and other agencies, inadequate maintenance of some equipment deployed by DOD and State, and the lack of infrastructure and harsh environmental conditions at some border sites.

- According to officials from several recipient countries we visited, corruption is a pervasive problem within the ranks of border security organizations. DOE, DOD, and State officials told us they are concerned that corrupt foreign border security personnel could compromise the effectiveness of U.S.-funded radiation detection equipment by either turning off equipment or ignoring alarms. To mitigate this threat, DOE and DOD plan to deploy communications links between individual border sites and national command centers so that alarm data can be simultaneously evaluated by multiple officials, thus establishing redundant layers of accountability for alarm response. In addition, DOD plans to implement a program in Uzbekistan to combat some of the underlying issues that can lead to corruption through periodic screening of border security personnel. State also conducts anticorruption training as part of its overall export control assistance to foreign countries.

- Some radiation portal monitors that State and other U.S. agencies previously installed at foreign border sites have technical limitations and can only detect gamma radiation, which makes them less effective at detecting weapons-usable nuclear material than equipment with both gamma and neutron radiation detection capabilities. Since 2002, DOE has maintained this equipment but has not upgraded any of it, with the exception of one site in Azerbaijan. According to DOE officials, new implementing agreements with the appropriate ministries or agencies within the governments of each of the countries where the old equipment is located are needed before DOE can install more sophisticated equipment. According to DOE officials, these agreements are important because they exempt DOE from paying foreign taxes and require host governments to provide DOE with data on detections of illicit trafficking in nuclear materials. Until these border sites receive equipment with both gamma and neutron detection capability, they will remain vulnerable to certain forms of nuclear smuggling.

- Regarding problems with equipment maintenance, DOE has not systematically maintained handheld radiation detection equipment provided by State and other agencies. As a result, many pieces of handheld equipment, which are vital for border officials to conduct secondary inspections of vehicles or pedestrians, may not function properly. For example, in Georgia, we observed border guards performing secondary inspections with a handheld radiation detector that had not been calibrated (adjusted to conform with measurement standards) since 1997. According to the detector's manufacturer, yearly recalibration is necessary to ensure that the detector functions properly.

- Finally, many border sites are located in remote areas that often do not have access to reliable supplies of electricity, fiber optic lines, and other infrastructure essential to operate radiation detection equipment and associated communication systems. Additionally, environmental conditions at some sites, such as extreme heat, can affect the performance of equipment. To mitigate these concerns, DOE, DOD, and State have provided generators and other equipment at remote border sites to ensure stable supplies of electricity and, when appropriate, heat shields or other protection to ensure the effectiveness of radiation detection equipment.

State has taken some steps to coordinate U.S. radiation detection equipment assistance overseas, but its ability to carry out its role as lead coordinator is limited by shortcomings in its strategic plan for interagency coordination and by its lack of a comprehensive list of all U.S. radiation detection equipment assistance. In response to a recommendation we made in 2002, State led the development of a governmentwide plan to coordinate U.S. radiation detection equipment assistance overseas. This plan broadly defines a set of interagency goals and outlines the roles and responsibilities of participating agencies. However, the plan lacks key components we recommended, including overall program cost estimates, projected time frames for program completion, and specific performance measures. Without these elements in the plan, State will be limited in its ability to effectively measure U.S. programs' progress toward achieving the interagency goals. Additionally, in its role as lead interagency coordinator, State has not maintained accurate information on the operational status and location of all radiation detection equipment provided by U.S. programs. While DOE has responsibility for maintaining information on previously deployed U.S.-funded portal monitors, State primarily works through its in-country advisors to gather and maintain information on handheld radiation detection equipment provided by State and other U.S.

agencies. However, four of nine in-country advisors we spoke with, who are stationed in countries that have received significant amounts of handheld radiation detection equipment, said that they did not have up-to-date information regarding the operational status and location of this equipment. Furthermore, while DOE, DOD, and State each maintain lists of radiation detection equipment provided by their programs, they do not regularly share such information, and there is no comprehensive list of all equipment provided by U.S. programs. Without such a coordinated master list, program managers at DOE, DOD, and State cannot accurately assess if equipment is operational and being used as intended; determine the equipment needs of countries where they plan to provide assistance; or detect whether an agency has unknowingly supplied duplicative equipment.

To strengthen program management and effectiveness, we recommend that the Secretary of Energy, working with the Administrator of the National Nuclear Security Administration, revise the long-term cost projections for the SLD-Core program to account for the cost of providing specific anticorruption measures and upgrade portal monitors previously provided by other U.S. government agencies and currently maintained by DOE that do not have both gamma and neutron detection capability as soon as possible. Additionally, to strengthen accountability of U.S. radiation detection assistance programs, we recommend that the Secretary of State, working with the Secretaries of Defense and Energy and the Administrator of the National Nuclear Security Administration, ensure maintenance is provided for all handheld radiation detection equipment supplied by U.S. programs; strengthen the *Strategic Plan for Interagency Coordination of U.S. Government Nuclear Detection Assistance Overseas* by including specific performance measures, overall cost estimates, and projected time frames for completion of U.S. efforts; and compile, maintain, and share a master list of all U.S. radiation detection assistance.

We provided the Departments of Energy, Defense, and State with draft copies of this report for their review and comment. DOE and State generally agreed with our conclusions and recommendations. DOD had no written comments on our report. DOE provided additional information clarifying its prioritization process, anticorruption measures, and maintenance efforts. State disagreed with our emphasis on the interagency working group and in-country advisors as the primary mechanisms for coordination of U.S. radiation detection equipment assistance programs. State believes that informal coordination between State program officers and their interagency counterparts in Washington, D.C., is the primary

coordination mechanism. We have added language that notes the existence of such informal coordination. However, State's own *Strategic Plan for Interagency Coordination of U.S. Government Nuclear Detection Assistance Overseas* does not mention such informal mechanisms. Rather, State's plan emphasizes the role of the interagency working group and states that such coordination is "vital to the overall success of U.S. nuclear detection assistance efforts." DOE, DOD, and State also provided technical comments, which we incorporated as appropriate.

Background

Since our May 2002 report on nuclear smuggling, the International Atomic Energy Agency (IAEA) has reported 481 additional confirmed cases of the smuggling of nuclear and/or radiological materials.[6] One of these cases involved nuclear material suitable for use in a nuclear weapon.[7] The majority of new cases IAEA reported involved radiological sources, which could be combined with conventional explosives to create a "dirty bomb." According to IAEA, the majority of all reported incidents with radiological sources involved criminal activity, most frequently theft. Radiological sources and devices in which they are used can be attractive for thieves because of their perceived high resale value or the value of their ability to shield or encapsulate illegally shipped materials within legal shipments of radioactive materials. Some of the reported cases indicate a perceived demand for radioactive materials on the black market, according to IAEA. From 2003 to 2004, the number of incidents reported by IAEA substantially increased. IAEA indicated that improved reporting may, in part, account for this increase. As of December 2004, 82 of IAEA's Member States were participating in contributing to the database.[8]

Detecting actual cases of illicit trafficking in nuclear material is complicated because one of the materials of greatest concern—highly enriched uranium—is among the most difficult materials to detect because

[6]IAEA's database includes incidents involving unauthorized acquisition, provision, possession, use, transfer, or disposal of nuclear materials or other radioactive materials, whether intentional or unintentional and with or without crossing international borders, including unsuccessful and thwarted events. These include incidents involving loss and discovery of uncontrolled nuclear and radiological materials.

[7]According to IAEA, in June 2003, an individual was arrested while attempting to smuggle 170 grams of highly enriched uranium across the border between Armenia and Georgia.

[8]It is important to note that participation in IAEA's nuclear trafficking database is voluntary.

of its relatively low level of radioactivity. Uranium emits only gamma radiation so detection equipment, which generally contains both gamma and neutron detection capabilities, only detects uranium from the gamma detector. However, gamma radiation emissions can be shielded by encasing nuclear material within another high density material, such as lead. Another nuclear material of great concern is plutonium, which emits both gamma and neutron radiation. However, shielding nuclear material generally does not prevent the detection of neutron radiation and, as a result, plutonium can be detected by neutron detectors regardless of the amount of shielding from high density material. According to DOE officials, neutron radiation alarms are only caused by man-made materials, such as plutonium, while gamma radiation alarms are caused by a variety of naturally occurring sources including commercial goods such as bananas, ceramic tiles, and fertilizer, in addition to dangerous nuclear materials, such as uranium and plutonium.

The most common types of radiation detection equipment are radiation portal monitors; handheld equipment, including both survey meters and radioactive isotope identification devices; and radiation pagers. The radiation detection equipment that U.S. programs provide to foreign countries is commercially available, off-the-shelf technology. Radiation portal monitors are stationary pieces of equipment designed to detect radioactive materials being carried by vehicles, pedestrians, or railcars. Radiation portal monitors currently being provided by U.S. agencies have the ability to detect both gamma and neutron radiation, which is important for detecting highly enriched uranium and plutonium, respectively. According to DOE, radiation portal monitors with both gamma and neutron detectors cost between about $28,000 and $55,000, plus the additional costs associated with installing the equipment and communication systems necessary to operate it.[9] Figure 1 shows a picture of radiation portal monitors with both gamma and neutron detectors.

[9]The price of radiation portal monitors varies depending on the manufacturer and type of monitor, e.g., whether the portal monitor is built to screen pedestrians, vehicles, or trains.

Figure 1: Radiation Portal Monitors Containing Both Gamma and Neutron Radiation Detectors at a Border Site in Northern Greece

Source: GAO.

In 2002, we reported that some U.S. agencies, primarily State, provided radiation portal monitors that did not have the ability to detect neutron radiation to foreign governments.[10] Because this equipment is capable of detecting only gamma radiation, it is less effective in detecting certain nuclear material, such as plutonium that has been shielded with high density material. Replacement cost for similar equipment (capable of detecting only gamma radiation), is about $5,000, not including installation costs, according to DOE officials. Figure 2 shows an example of such a radiation portal monitor.

[10]See GAO-02-426.

Figure 2: Older Radiation Portal Monitor Able to Detect Only Gamma Radiation at a Border Site in Georgia

Source: GAO.

Handheld radiation detection equipment, such as survey meters and radioactive isotope identification devices, are used by customs officials and border guards to conduct secondary inspections,[11] the aim of which is to localize the source of an alarm and determine the nature of the material present. Survey meters can be used to detect the level of radiation by providing a count of the radiation level in the area. Radioactive isotope identification devices, commonly known as RIIDs, identify the specific isotope of the radioactive source detected. In addition, U.S. programs often provide radiation pagers, which are small radiation detection devices worn on belts by border security personnel to continuously monitor levels of radiation in the area. Pagers are considered personal safety devices and, therefore, should not be relied upon to implement secondary inspections.[12]

Three U.S. Agencies Have Spent About $178 Million to Provide Radiation Detection Equipment to 36 Countries, but Future Spending Requirements for Some Programs Are Uncertain

Since fiscal year 1994, DOE, DOD, and State have spent about $178 million to provide radiation detection equipment to 36 countries as part of the overall U.S. effort to combat nuclear smuggling. However, because some U.S. agencies provide radiation detection equipment to foreign countries on an as needed basis, future U.S. government spending requirements for such assistance are uncertain.

[11]Primary inspections are conducted with radiation portal monitors to determine whether there is a presence of radiation. After radiation is detected, a secondary inspection is conducted to determine where the source is located and what material is present.

[12]Handheld radiation detection equipment is generally less expensive than fixed radiation portal monitors, in part, because there are no installation costs associated with providing handheld equipment. According to DOE, DOD, State, and DHS officials, survey meters cost about $1,200 to $7,000; RIIDs typically cost about $3,000 to $18,000; and radiation pagers cost about $1,500.

DOE, DOD, and State Had Spent a Combined Total of About $178 Million through the End of Fiscal Year 2005 to Provide Radiation Detection Equipment to 36 Countries

DOE has spent about $131 million to provide radiation detection equipment and training to 12 countries and to maintain certain types of equipment previously installed by other U.S. agencies in 23 countries. DOD has also spent almost $22 million to provide radiation portal monitors, handheld radiation detection devices, and radiation detection training to 8 countries in the former Soviet Union and Eastern Europe. Similarly, State has spent about $25 million to provide various types of radiation detection equipment and related training to 31 countries. (See table 1.)

Table 1: U.S. Spending by Program on Radiation Detection Equipment and Related Training Provided to Foreign Countries through the End of Fiscal Year 2005

Dollars in millions

Agency	Program	Expenditures
DOE	Second Line of Defense "Core" program	$129.5
DOE	Cooperative Radiological Instrument Transfer project	1.2
DOD	Weapons of Mass Destruction Proliferation Prevention Initiative	7.9
DOD	International Counterproliferation Program	14.5
State	Export Control and Related Border Security program	15.4
State	Nonproliferation and Disarmament Fund	9.1
State	Georgia Border Security and Law Enforcement program	0.2
Total		**$177.8**

Sources: GAO analysis of DOD, DOE, and State data.

Note: Figures have been rounded.

DOE Has Spent About $131 Million Providing Radiation Detection Equipment and Related Training

Since fiscal year 1998, DOE has spent about $130 million through its SLD-Core program to provide radiation detection equipment and training at 83 border sites in Russia, Greece, and Lithuania and to maintain certain types of equipment previously installed by State and other U.S. agencies in 23 countries.[13] DOE recently signed implementing agreements with the governments of Azerbaijan, Georgia, Slovenia, and Ukraine and will begin work in those countries in fiscal year 2006. Through its SLD-Core program,

[13]From fiscal year 1997 through fiscal year 2001, State provided DOE with approximately $2.7 million to assist its SLD-Core program with installing radiation detection equipment at eight sites in Russia. These sites included an airport near Moscow, six seaports, and one railroad crossing. We have included the $2.7 million provided by State under total expenditures for DOE.

DOE currently plans to install radiation detection equipment at a total of about 350 sites in 31 countries by 2012 at an estimated total cost of $570 million.

In addition, DOE spent about $1 million to provide radiation detection equipment to nine countries through its Cooperative Radiological Instrument Transfer project (CRITr), which began in 2004. Through CRITr, DOE refurbishes previously decommissioned handheld radiation detection equipment located at various DOE sites and provides this equipment to foreign law enforcement officers. DOE plans to provide handheld equipment to six additional countries through the CRITr project in fiscal year 2006.[14]

DOD Has Spent About $22 Million to Provide Handheld Radiation Detection Devices to Eight Countries and to Install Portal Monitors in Uzbekistan

Through the end of fiscal year 2005, DOD had spent about $22 million through two programs to provide handheld radiation detection devices to eight countries in the former Soviet Union and Eastern Europe and to install fixed radiation portal monitors in Uzbekistan. Specifically, through its Weapons of Mass Destruction Proliferation Prevention Initiative (WMD-PPI), DOD spent about $0.2 million to provide various types of handheld radiation detection equipment to three countries and about $6.4 million to install radiation portal monitors at 11 sites in Uzbekistan.[15] DOD plans to complete installation at 6 more sites in Uzbekistan by the end of fiscal year 2006 and to finish all associated radiation detection work in Uzbekistan by fiscal year 2009 at a total cost of about $54 million. In fiscal year 2006, DOD plans to transfer responsibility for maintenance of the equipment it has provided to Uzbekistan to DOE's SLD-Core program.[16]

Through its International Counterproliferation Program (ICP), DOD has spent about $15 million to provide handheld radiation detection equipment

[14]Additional information on these DOE radiation detection assistance programs can be found in appendix II.

[15]The program spending total for DOD's WMD-PPI program is misleading because, in addition to about $6 million in expenditures, DOD has obligated over $19 million to three contracts for program costs associated with installing radiation detection equipment in Uzbekistan, such as communication systems and training. Because DOD only executes spending on these contracts after all work has been completed, these contracts were not paid until fiscal year 2006 and, therefore, are not included in the program's expenditure total.

[16]According to DOE officials, DOE's SLD-Core program has worked with DOD to coordinate on the types of radiation detection equipment and specific sites in Uzbekistan that will receive assistance.

and training on weapons of mass destruction proliferation prevention to 6 countries in the former Soviet Union and Eastern Europe. In addition, DOD has provided a variety of training on weapons of mass destruction proliferation to 17 additional countries. Through ICP, DOD plans to continue to provide limited amounts of handheld radiation detection equipment to other countries in the future.[17]

State Has Spent About $25 Million to Provide Radiation Detection Equipment and Related Training to 31 Countries

The Department of State, through three programs—the Export Control and Related Border Security program (EXBS), the Nonproliferation and Disarmament Fund (NDF), and the Georgia Border Security and Law Enforcement program (GBSLE)—has spent about $25 million since fiscal year 1994 to provide radiation detection equipment and related training to 31 foreign countries. State's EXBS program has spent approximately $15.4 million to provide radiation portal monitors, various types of handheld radiation detection devices, X-ray vans equipped with radiation detectors, and training on how to use this equipment to 30 countries mainly in the former Soviet Union and Eastern Europe. Similarly, through NDF, State spent about $9.1 million from fiscal year 1994 through 2001 to, among other things, install portal monitors in countries other than Russia, provide handheld radiation detectors, and provide vans equipped with X-ray machines to countries, including Estonia, Latvia, Lithuania, and Poland. Lastly, through its GBSLE program, State spent $0.2 million in 1999 to provide border guards and customs officials in the Republic of Georgia with 137 radiation pagers. State has not provided any additional radiation detection equipment assistance through NDF since 2001 or through its GBSLE program since 1999.[18]

Future U.S. Spending on Radiation Detection Assistance Is Uncertain

Because some U.S. programs provide radiation detection equipment to foreign countries on an as needed basis and DOE has yet to gain agreements with all of the countries where it would like to install equipment, future U.S. government spending requirements for radiation detection assistance remain uncertain. For example, although DOE is the primary U.S. agency responsible for installing radiation portal monitors in foreign countries, State selectively funds projects to provide radiation

[17]Additional information on these DOD radiation detection assistance programs can be found in appendix III.

[18]For additional information on these radiation detection equipment assistance programs at State, see appendix IV.

portal monitors to foreign countries through its EXBS program. State officials told us that State coordinates its work in this area with DOE to avoid duplication, and it conducts these projects on an as needed basis to provide a quick response to emerging nuclear smuggling threats. For example, in December 2005, State installed portal monitors and provided handheld radiation detection equipment to one site in Armenia at a cost of about $0.5 million, in part because it believed that the threat of nuclear smuggling warranted immediate installation of this equipment. State officials we spoke with told us that they coordinated with DOE to ensure State's work in Armenia is consistent with overall U.S. goals and that the specific equipment installed met minimum detection standards. Furthermore, State officials also told us that the newly installed radiation portal monitors at this site in Armenia provide a redundant layer of security with DOE's planned work to install equipment on the opposite side of the border in the Republic of Georgia.

Because State selectively funds portal monitor projects through its EXBS program to provide a quick U.S. government response to emerging security threats of nuclear smuggling, it is uncertain how many other projects State will fund in this area, in what countries these projects will be conducted, or how much they will cost. Additionally, State officials also told us that they have yet to determine whether or not they will fund any future projects to provide radiation detection equipment assistance to foreign countries through the Nonproliferation and Disarmament Fund or the Georgia Border Security and Law Enforcement program. As a result, it is uncertain how many other projects State will fund through either of these two programs or how much they will cost.

DOE currently plans to install equipment at a total of about 350 sites in 31 countries by 2012 at an estimated cost of $570 million based on a strategy that analyzes and prioritizes countries for receiving installations. However, it cannot be certain which countries will be included in the SLD-Core program until it signs the necessary agreements with these countries' governments. For example, DOE planned to complete installations in Georgia, Kazakhstan, Slovenia, and Ukraine in fiscal year 2005. However, installations in Georgia, Slovenia, and Ukraine will not be completed until at least fiscal year 2006 because of delays in signing implementing agreements with these countries. Additionally, DOE is still in the process of trying to reach agreement with Kazakhstan. In fiscal year 2004, DOE reallocated a portion of its funding to directly fund its planned work at certain border sites in Kazakhstan. However, difficulty in reaching agreement with Kazakhstan continues to delay this work. If DOE continues

to experience delays in signing agreements with foreign countries, or cannot reach agreements with all of the countries where it currently plans to install equipment, it may need to alter its planned scope of work and overall cost estimates for the program. Furthermore, once DOE reaches agreement with a certain country, it still needs to conduct individual site assessments to determine at which sites providing radiation detection equipment will be cost-effective, as well as the amount of equipment each site will require. Therefore, DOE is limited in its ability to determine the total cost of the SLD-Core program until it signs implementing agreements with the governments of countries where it plans to work and conducts assessments to determine which specific sites within those countries require radiation detection equipment and in what amounts.

The Threat of Corruption, Technological Limitations, Maintenance Problems, and Site Infrastructure Issues Challenge U.S. Programs to Combat Nuclear Smuggling

U.S. programs that provide radiation detection equipment to foreign governments face a number of challenges that affect the installation and effective operation of radiation detection equipment, including: the threat of corruption of border security officials in some foreign countries, technical limitations of radiation detection equipment previously deployed by State and other agencies, inadequate maintenance of some handheld equipment, and the lack of infrastructure necessary to operate radiation detection equipment and harsh environmental conditions at some border sites. DOE, DOD, and State have taken some steps to address these challenges, such as providing multitiered communications systems to mitigate corruption so that alarm data can be simultaneously viewed at several levels of authority and supplying protective casings for radiation portal monitors to prevent damage from vandals or extreme heat.

Possible Corruption of Border Guards Poses a Threat to the Effective Operation of U.S.-Funded Radiation Detection Equipment

According to U.S. and foreign government officials, corruption is a pervasive problem within the ranks of border security organizations. Specifically, because foreign border guards are often poorly paid and geographically isolated, there are concerns that foreign officials could be bribed and turn off the radiation detection equipment and allow nuclear smuggling to occur. For example, an official might turn off the equipment to allow a nuclear smuggler to pass through a border crossing. According to a Russian press report, in October 2004, a Russian customs agent at a site in western Russia was fired because he was aiding a smuggling ring. Additionally, in July 2005, after the newly elected President of Ukraine took

office, he reorganized many agencies within the government, including the Customs Service, because of concerns about corruption.

DOE, DOD, and State officials told us they are concerned that corrupt foreign border security personnel could compromise the effectiveness of U.S.-funded radiation detection equipment by either turning off equipment or ignoring alarms. As a result, U.S. programs that provide fixed radiation portal monitors are taking some steps to evaluate the degree to which corruption is present in the countries and regions where they are working or plan to work. For example, DOE's SLD-Core program commissioned three studies to better understand corruption and the challenges that it could bring to the program. Additionally, DOE includes countrywide corruption assessments as part of its efforts to help program officials prioritize countries to include in the SLD-Core program. In addition, DOD and State also include anticorruption courses as part of the radiation detection training they provide to foreign border security personnel.

Some U.S. programs also have taken or plan to take other specific steps to mitigate the threat of corruption, such as (1) providing multitiered communications systems so that alarm data can be simultaneously viewed at several levels of authority, (2) implementing programs to combat some of the underlying issues that can lead to corruption through periodic screening of border security personnel, and (3) installing radiation portal monitors on both sides of a particular border if there are concerns about corruption of personnel in these countries. For example, DOE and DOD are deploying communication systems that link the activities at individual border sites with regional and national command centers. By doing so, alarm data can be simultaneously evaluated by officials both at the site and up the chain of command, thus establishing redundant layers of accountability for responding to alarms. As a result, if a local official turns off the radiation detection equipment at a site, higher level officials can quickly be made aware of the incident and investigate the reasons for the alarm. Additionally, DOD plans to implement an Employee Dependability Program in Uzbekistan that includes background checks, personal interviews of applicants, monitoring of performance and behavior, and annual refresher training to combat some of the underlying issues that can lead to corruption among border security personnel. DOE officials told us that they are considering implementing such a screening program in some countries where the SLD-Core program works. Lastly, U.S. programs are installing radiation portal monitors on both sides of some borders to create redundant coverage to increase the likelihood of detection and interdiction. In fiscal year 2006, DOE plans to install radiation portal

monitors at a number of sites in Georgia. At one site in Armenia, across the border from a planned DOE installation, State installed radiation portal monitors in December 2005, in part, because of concerns about corruption on both sides of the border at this location. DOE is also considering employing this type of redundant coverage at other locations throughout Eastern Europe and the former Soviet Union.

While DOE has taken steps to determine the level of corruption in some countries and regions where it works and includes countrywide corruption assessments as part of its prioritization model, DOE is still in the process of determining in what countries it will provide specific anticorruption measures and how much it will cost to do so based on its analysis of the corruption threat. For example, DOE estimates that it will spend about $1 million to provide radiation detection equipment and related communications systems at a typical foreign border crossing. DOE officials noted that the standard communication systems the SLD-Core program provides with radiation portal monitors have some anticorruption value because radiation alarms require more than one official to review and close out before the system can be reset. However, DOE has not included the costs associated with other specific anticorruption measures in the long-term cost estimates for its SLD-Core program.

Some Border Crossings Remain More Vulnerable to Nuclear Smuggling Because DOE Has Not Upgraded Less Sophisticated Equipment Installed by Other U.S. Agencies

In 2002, DOE assumed responsibility for maintaining some radiation detection equipment previously installed by State and other U.S. agencies in 23 countries in the former Soviet Union and Eastern Europe. However, DOE has not upgraded any of this less sophisticated equipment, with the exception of one site in Azerbaijan.[19] Through an interagency agreement, DOE assumed responsibility for ensuring the long-term sustainability and continued operation of radiation portal monitors and X-ray vans equipped with radiation detectors that State and other U.S. agencies provided to these countries. Through this agreement, DOE provides spare parts, preventative maintenance, and repairs for the equipment through regularly scheduled maintenance visits. Through the end of fiscal year 2005, DOE had conducted maintenance and sustainability activities for equipment in 21 of the 23 countries where equipment had been provided. DOE officials told us that, although Belarus received a significant amount of radiation detection equipment from DOD, DOE is currently prohibited from

[19]DOE completed upgrading one site in Azerbaijan in December 2005 at a cost of about $86,000.

maintaining this equipment by restrictions placed on U.S. assistance to Belarus.[20] As a result, the maintenance status of the 38 portal monitors and almost 200 pieces of handheld radiation detection equipment DOD provided to Belarus is unknown. Additionally, at the request of the Turkish government, DOE no longer maintains 41 portal monitors and over 150 pieces of handheld radiation detection equipment State previously provided to Turkey.

As we originally reported in 2002, at some sites in foreign countries, State and other U.S. agencies installed portal monitors that contained only gamma radiation detectors, which are less effective in detecting certain nuclear material, such as plutonium, than detectors with both gamma and neutron detection capability. Although State's current policy is to install radiation detection equipment with both gamma and neutron detection capability, according to DOE officials, because of their configuration and sensitivity, these older portal monitors are less likely to detect small quantities of highly enriched uranium or nuclear material that is shielded, for example, by a lead container or certain parts of a vehicle. When it assumed responsibility for maintaining this equipment, DOE conducted an initial assessment of these portal monitors to determine whether they were functional and what maintenance was required. During the course of this analysis, DOE found that much of the equipment was damaged and required total replacement or major repairs. In such cases, DOE installed similar equipment with gamma radiation detectors but chose not to upgrade the equipment with newer portal monitors that would be capable of detecting both gamma and neutron radiation. DOE's policy was to replace this equipment in-kind and wait to upgrade the equipment as part of a countrywide deployment through the SLD-Core program. However, according to SLD-Core program officials, DOE did not have funds earmarked for upgrading the equipment in the absence of a countrywide deployment through the SLD-Core program.

Additionally, SLD-Core program officials stated that DOE would need to sign new agreements with the appropriate ministries or agencies within the governments of the countries where State and other agencies had previously installed equipment before DOE could invest "substantial resources" to upgrade the equipment. DOE officials noted that replacing the less sophisticated portal monitors with similar equipment usually costs

[20]State's Selective Engagement Policy prohibits a variety of U.S. assistance to Belarus and was applied to that country beginning in 1997.

less than $5,000, plus installation costs, while deploying a comprehensive system comprised of portal monitors that can detect both gamma and neutron radiation, associated communication systems, and related training can cost up to $1 million per site. The agreements are important because they exempt DOE from payment of host government taxes, customs duties, or other charges per congressional guidance. In addition, these agreements require the host government to provide DOE with data on detections of illicit trafficking in nuclear materials gathered as a result of assistance DOE provided through the SLD-Core program. Though the SLD-Core program has signed agreements with some countries where the less sophisticated equipment was installed, such as Ukraine, DOE has yet to upgrade any of the equipment in these countries, with the exception of one site in Azerbaijan, primarily because the details of the countrywide installations are still being determined. According to DOE officials, as countries with older equipment sign agreements with DOE to implement the full SLD-Core program, sites in these countries with less sophisticated equipment will be upgraded.

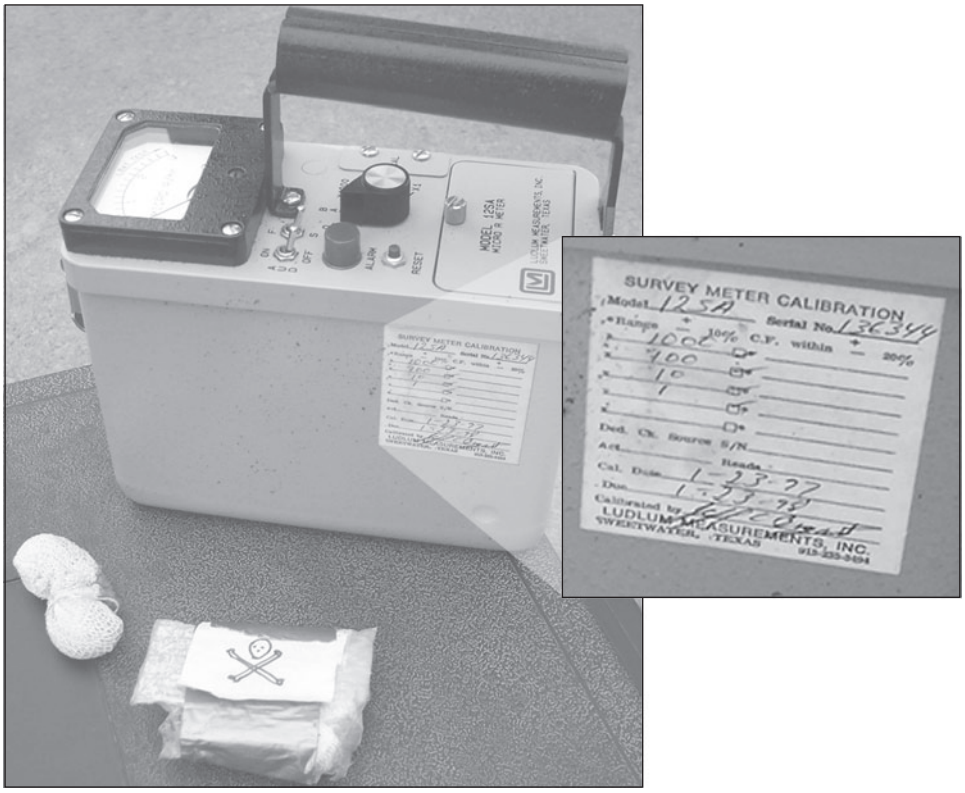
In November 2005, DOE completed an assessment of the maintenance activities it performs on equipment provided by other U.S. agencies. DOE found that equipment failures at many of these sites go unattended, often for months. DOE determined that its maintenance of X-ray vans previously provided by State was not critical to the mission of the SLD-Core program. As a result, DOE is planning to phase out its maintenance of X-ray vans after fiscal year 2007. According to DOE officials, the budget of the SLD-Core program cannot sustain what DOE considers "non-mission critical work." In fiscal year 2005, DOE bore the full financial responsibility for all maintenance activities because State provided no funding to DOE for this work. In addition to the X-ray vans, DOE evaluated the sites where portal monitors were previously installed by State and other agencies and identified those monitors that should no longer be supported by the SLD-Core program. DOE assessed each location where less sophisticated portal monitors are maintained and prioritized which sites should receive upgraded equipment. DOE plans to work with State to upgrade selected sites and decommission some sites that have equipment that is not being used or is beyond repair.

Concerns Exist About Maintenance of Some Handheld Radiation Detection Equipment

DOE and State signed an interagency agreement in 2002 giving responsibility for maintaining most radiation detection equipment previously installed by State and other U.S. agencies to DOE. However, this agreement did not make DOE responsible for maintaining handheld radiation detection equipment previously deployed by these agencies. State has also not assumed responsibility for maintaining about 1,000 handheld radiation detectors provided by its programs that are vital to border officials for conducting secondary inspections of vehicles and pedestrians, and, as a result, much of this equipment is in disrepair.[21] For example, at one site in Georgia, we observed border guards performing secondary inspections with a handheld radiation detector, previously provided by State, which had not been calibrated since 1997 (see fig. 3). According to the detector's manufacturer, yearly recalibration is necessary to ensure that the detector functions properly. Furthermore, DOE officials we spoke with told us that—similar to radiation portal monitors—handheld radiation detection devices require periodic maintenance checks and recalibration to ensure that they remain operable and continue to meet minimum detection standards.

[21]In addition to the handheld radiation detection equipment cited above, about 900 radiation pagers were also previously provided by State and other U.S. agencies. However, according to DOE and State officials, radiation pagers generally require little maintenance and have a relatively low replacement cost compared with radioactive isotope identification devices or other handheld radiation detection equipment used for conducting secondary inspections.

Figure 3: Handheld Radiation Detector in Georgia Needing Recalibration



Source: GAO.

Batteries used in some handheld radiation detection equipment typically need to be replaced every 2 years and some types of handhelds are fragile and can be easily broken, requiring that replacement devices or spare parts be readily available. At the request of State, DOE is currently evaluating the costs associated with maintaining this handheld equipment. Specifically, DOE has asked its contractor currently responsible for maintaining the portal monitors and X-ray vans in these countries to develop a proposal for assuming responsibility for maintenance of the handheld equipment as well. According to DOE officials, maintenance of handheld equipment could be conducted during regularly scheduled visits for maintenance of

portal monitors and X-ray vans.[22] As a result, DOE officials believe that no additional travel funds would be required for this activity. However, DOE officials also told us that if they were to assume full responsibility for maintaining the handheld equipment at sites where they are maintaining radiation portal monitors installed by State and other agencies they would need additional funding for labor and to provide replacement equipment and spare parts.

Limited Infrastructure and Harsh Environmental Conditions at Some Border Sites Pose Equipment Problems

Limited infrastructure and harsh environmental conditions at some foreign border sites create challenges to the installation and operation of radiation detection equipment. For example, many border sites are located in remote areas, which often do not have access to reliable supplies of electricity, fiber optic lines, and other infrastructure needed to operate radiation portal monitors and associated communication systems. Prior to providing radiation portal monitors, U.S. programs typically perform site assessments to determine the details surrounding how radiation detection equipment will be installed at a given site. The assessment includes the operational needs of the equipment depending on the infrastructure available at the site. To address the needs identified, DOE, DOD, and State provide generators at some sites to supply electricity to the radiation detection equipment because the electric power supply shuts down periodically or may be very low at these remote sites. Additionally, the communication systems that are provided to report activities from the radiation detectors require fiber optic cabling for their operation. If no cabling exists, underground cabling or radio wave operated communication systems must be installed to perform this function. Finally, at some border sites, the radiation portal monitors are located significant distances from the control and communication system center. U.S. program officials we spoke with expressed concern that theft could occur because of the remote location of this equipment. To prevent such interference with the equipment, antitampering measures such as protective cages are used to protect the integrity of the portal monitors (see fig. 4).

[22]DOE officials noted that, during regular site visits to conduct maintenance on radiation portal monitors, DOE maintenance teams often are asked by the host government to maintain handheld radiation detection equipment provided by other U.S. programs. DOE officials also stated that although this work is outside the scope of DOE's responsibility, when time and funding permit, DOE maintenance teams have replaced some dysfunctional equipment on a case-by-case basis.

Figure 4: Rail Portal Monitor in Western Uzbekistan with Antitampering Protection

Source: DOD.

Additionally, environmental conditions at some sites, such as extreme heat, can compromise the effectiveness of radiation detection equipment. Extreme heat can accelerate the degradation of components within

radiation detection equipment and, as a result, can affect the performance and long-term sustainability of the equipment. DOD placed a protective casing around the radiation portal monitors it installed in Uzbekistan as a heat shield to ensure the effective long-term operation of the equipment (see fig. 5).

Figure 5: Radiation Portal Monitor in Uzbekistan with Heat Shield Enclosure

Source: GAO.

State's Efforts to Coordinate U.S. Assistance Are Limited by Deficiencies in the Interagency Strategic Plan and the Lack of a Comprehensive List of Equipment Provided by U.S. Programs

State coordinates U.S. radiation detection equipment assistance overseas through an interagency working group and in-country advisors. However, its ability to carry out its role as lead interagency coordinator is limited by deficiencies in the strategic plan for interagency coordination and by its lack of a comprehensive list of all U.S. radiation detection assistance. Specifically, the interagency strategic plan lacks key components, such as overall program cost estimates, projected time frames for program completion, and specific performance measures. Additionally, State has not maintained accurate information on the operational status and location of all radiation detection equipment provided by U.S. programs.

State Coordinates U.S. Radiation Detection Equipment Assistance through an Interagency Working Group and In-Country Advisors

As the lead coordinator of U.S. radiation detection equipment assistance overseas, State has taken some steps to coordinate the efforts of U.S. programs that provide this type of assistance to foreign countries. State's coordination takes place primarily through two methods: an interagency working group and State's in-country advisors. The main coordination mechanism for U.S. radiation detection assistance programs is the interagency working group, chaired by State, which consists of program representatives from DOE, DOD, State, and DHS. According to State, this working group holds meetings about once every 2 months to coordinate the activities of U.S. programs that provide radiation detection equipment and export control assistance overseas. These interagency meetings attempt to identify and prevent overlap among the various U.S. programs through discussion of such issues as funding, upcoming program activities, and recent trips to countries receiving U.S. assistance. Meetings are attended by program managers responsible for overseeing and implementing radiation detection equipment assistance programs in foreign countries. While DOD and DOE officials we spoke with told us that these interagency meetings are somewhat beneficial, they stated that meetings primarily facilitate coordination at a high level and typically lack the specific detail necessary to identify and prevent program overlap within countries and regions where multiple U.S. programs provide radiation detection equipment assistance. Through this working group, State also maintains an interagency schedule that provides information on planned activities, training, and site visits of U.S. programs.

State also coordinates U.S. programs through in-country advisors, stationed in more than 20 foreign countries. While State funds these

advisors, State officials told us that they work on behalf of all U.S. programs that provide nuclear detection assistance in their respective countries. According to State officials, these advisors serve as the on-the-ground coordinators of U.S. export control and border security assistance and are the primary sources of information concerning past and present provision of U.S. radiation detection equipment assistance in their respective countries. State officials also noted that frequent informal coordination takes place between program managers at State and their counterparts in Washington, D.C., at other federal agencies.

In addition to State's coordination efforts, DHS recently created the Domestic Nuclear Detection Office (DNDO) with responsibilities including coordinating nuclear detection research and developing a global nuclear detection architecture.[23] According to DHS, though DNDO is principally focused on domestic detection, its coordinating work will enhance U.S. efforts overseas through the design of a global nuclear detection architecture implemented under current agency responsibilities. Equally, while detection technologies developed by DNDO will be directed primarily by operational requirements for domestic applications, many technologies developed could have application in overseas radiation detection equipment assistance programs. However, DOE, DOD, and State officials we spoke with were unclear on what specific future role DNDO would play in coordinating activities of U.S. programs that provide radiation detection equipment assistance to foreign countries. These agencies are working with DNDO to clarify the future role that the office will play.

The Interagency Strategic Plan to Coordinate U.S. Radiation Detection Equipment Assistance Overseas Lacks Key Components

In 2002, we reported that U.S. efforts to help other countries combat nuclear smuggling needed strengthened coordination and planning to link U.S. programs through common goals and objectives, strategies and time frames for providing assistance, and performance measures for evaluating

[23]According to DHS, other responsibilities of DNDO include the (1) acquisition and support-to-deployment of the domestic detection system, (2) enhancement of effective sharing and use of nuclear detection-related information and intelligence, and (3) establishment of procedures and training for the end users of equipment developed and deployed through the new office.

the effectiveness of U.S. assistance.[24] State, as the lead coordinator of U.S. nuclear detection assistance overseas, led the development of a governmentwide interagency strategic plan to guide the efforts of U.S. programs that provide this assistance.[25] The plan broadly defines a set of interagency goals and objectives, establishes minimum technological standards for radiation detection equipment that U.S. programs provide, and outlines the roles and responsibilities of each agency. However, the plan does not include several elements necessary to effectively link U.S. programs together, prevent duplication, and guide their efforts toward completion.

While the plan provides U.S. agencies with a broad framework for coordinating this type of assistance by defining a set of interagency goals and outlining the roles and responsibilities of each agency, it does not include specific performance measures, overall program cost estimates, or projected time frames for program completion. Without incorporating these key elements into its plan, State will be limited in its ability, as lead coordinator, to effectively link U.S. programs and guide their efforts toward achieving interagency goals. For example, a primary goal in its plan is that recipient countries possess a comprehensive capability to detect and interdict illicitly trafficked nuclear and radiological material. However, without incorporating specific performance measures into its plan, State has no transparent way to effectively measure the performance of U.S. programs in this regard or to determine the degree to which they are reaching this or other interagency goals discussed in its plan. Finally, without incorporating overall program cost estimates and time frames for program completion into its plan, State cannot effectively determine the amount of U.S. government resources that will be required to achieve interagency goals and objectives or under what time frames these resources will be required. If State does not take steps to include these key elements in its plan, it will continue to be limited in its ability to effectively track the progress of U.S. programs, measure their performance toward achieving interagency goals and objectives, and determine the amount of

[24]For additional details on the findings and recommendations discussed in our prior report, see GAO-02-426.

[25]The *Strategic Plan For Interagency Coordination of U.S. Government Nuclear Detection Assistance Overseas* is intended to complement the existing program management plans of all participating agencies, which include DOE, DOD, State, DHS, and the Department of Commerce. DHS and Commerce are implementers of parts of State's EXBS program and thus were included as signatories to the plan.

funding required to achieve these goals and under what time frames these resources will be needed.

State Has Not Maintained Accurate Information on All Previously Provided Handheld Equipment, Which Inhibits Its Ability to Effectively Coordinate U.S. Assistance

State, in its role as lead interagency coordinator, has not maintained accurate information on the operational status and location of all the handheld radiation detection equipment previously provided by U.S. programs. While DOE has taken responsibility for maintaining information on previously deployed U.S.-funded radiation portal monitors, State primarily works through its in-country advisors and its interagency working group to gather and maintain information on handheld radiation detection equipment provided by U.S. programs. State, through its EXBS program, assumed direct management of the in-country advisors from DHS in February 2005. As part of their duties, State's in-country advisors are required to maintain a record of the transfer of all U.S.-provided export/border control equipment, including radiation detection equipment, within their respective countries and to follow up to ensure it is at the locations specified by the recipient government and is properly maintained. However, four of the nine advisors we spoke with, who are stationed in countries that have received a combined total of about 1,000 pieces of handheld radiation detection equipment from U.S. programs, acknowledged that they did not have up-to-date information regarding the present operational status or location of this equipment. Additionally, five of nine advisors we spoke with were unaware that, as part of their duties, they are required to maintain a record of all U.S.-provided equipment within their country. However, some advisors we spoke with stated that they attempt to determine this information but are sometimes limited in their ability to do so because other U.S. programs have not always coordinated with them before providing equipment in their country. As a result, it is necessary for some advisors to follow up with the host government to determine the status and location of U.S.-provided radiation detection equipment. According to some advisors, however, host governments may not always provide accurate information on what equipment has been provided in the past, where it is currently located, and its current operational status.

According to State officials, there is no comprehensive interagency list of radiation detection equipment that has been previously provided to foreign governments by U.S. programs. In 2002, we recommended that State, as the lead interagency coordinator, work with DOE and DOD to develop such a list. Officials we spoke with at DOE and DOD stated that having access to accurate information on past provisions of all radiation detection

equipment provided by U.S. programs is essential to interagency coordination, preventing overlap among programs, as well as appropriately assessing a specific country's equipment needs. During the course of our review, program officials at DOE, DOD, and State provided us with lists of radiation detection equipment their programs had provided to other countries. According to information we received from program managers at DOE, DOD, and State, more than 7,000 pieces of handheld radiation detection equipment, including radiation pagers and radioactive isotope identification devices, had been provided to 36 foreign countries through the end of fiscal year 2005. Because much of this equipment was provided to the same countries by multiple agencies and programs, it is difficult to determine the degree to which duplication of effort has occurred. For example, since fiscal year 1994, a total of 17 different countries have received handheld radiation detection equipment from more than one U.S. agency. However, although DOE, DOD, and State programs each maintain their own lists of radiation detection equipment provided to foreign countries, officials at these agencies told us that they do not regularly share such information with each other. Without the development of a comprehensive interagency list of U.S.-funded radiation detection equipment, program managers at DOE, DOD, and State cannot accurately assess the equipment needs of countries where they plan to provide assistance, may unknowingly provide duplicative sets of equipment, and cannot determine if the equipment is being used for its intended purpose or is in need of maintenance and repair.

Conclusions

Since the mid-1990s, DOE, DOD, and State have spent about $178 million to provide a variety of radiation detection equipment to countries around the world, and it is important that this equipment be properly maintained so that it can be effectively used to combat nuclear smuggling overseas. Since taking over responsibility for maintaining portal monitors deployed by other agencies in 2002, DOE has worked to ensure that this equipment is functioning and being used as intended. However, because DOE's interagency maintenance agreement with State did not include maintaining handheld radiation detection equipment previously provided by State and other agencies, much of this equipment may not be properly functioning. Handheld radiation detection equipment is vital for border officials to conduct secondary inspections of vehicles or pedestrians. Without taking steps to ensure that all previously provided radiation detection equipment, specifically handheld equipment, is adequately maintained and remains operational, State cannot ensure the continued effectiveness or long-term sustainability of this equipment.

Because corrupt officials could undermine the effectiveness of U.S. radiation detection assistance programs overseas by turning off radiation detection equipment or not properly responding to alarms, it is important for U.S. programs to employ anticorruption efforts, such as multitiered communication systems for radiation alarms, training, employee dependability programs, and redundant installations of equipment when providing such assistance. While we are encouraged that DOE, DOD, and State employ some corruption mitigation measures in their programs, DOE is still in the process of determining in which countries it will provide these specific anticorruption measures and how much such assistance would cost to implement.

In addition, though DOE has maintained less sophisticated radiation portal monitors previously deployed by other agencies since 2002, it has not upgraded the equipment at any of these sites. As a result, border sites with less sophisticated radiation portal monitors are more vulnerable to nuclear smuggling than sites with equipment that can detect both gamma and neutron radiation. We originally reported on this problem in our May 2002 report. In its official comments on that report, DOE stated that these less sophisticated monitors "are not as reliable [as monitors with both gamma and neutron radiation detection capabilities], and have limited or no ability to detect shielded plutonium." Although it is encouraging that DOE has recently undertaken an assessment of the equipment it maintains that was installed by other U.S. agencies, DOE has not yet improved the neutron detection capabilities of any of these less sophisticated monitors, with the exception of one site in Azerbaijan. As a result, these sites remain just as vulnerable to certain types of nuclear smuggling as they were when we first reported this deficiency in May 2002.

Finally, we believe that, unless key components such as overall program cost estimates, projected time frames for completion, and specific performance measures are incorporated into the interagency strategic plan, State will be limited in its ability to determine the amount of resources and time needed to achieve the broader interagency goals discussed in its plan or to effectively measure U.S. programs' progress toward achieving these goals. Furthermore, without accurate information on the current status and location of radiation detection equipment previously provided by U.S. programs, State cannot effectively fulfill its role as interagency coordinator of U.S. assistance. Because there are at least seven U.S. programs at three federal agencies that provide radiation detection equipment to foreign countries, program managers at DOE, DOD, and State need access to a "master list" that shows the status and location

of all U.S. radiation detection equipment assistance to more accurately determine the needs of specific countries and to avoid duplication of effort among U.S. programs. Without such a list, the potential exists for programs to provide duplicative sets of radiation detection equipment to the same country.

Recommendations for Executive Action

To strengthen program management and effectiveness, we recommend that the Secretary of Energy, working with the Administrator of the National Nuclear Security Administration, take the following two actions:

- Integrate projected spending on specific anticorruption measures into the long-term cost estimates for the SLD-Core program.

- Upgrade less sophisticated portal monitors previously installed by other U.S. agencies where DOE has determined this to be appropriate as soon as possible and include funding to accomplish this in DOE's planning and budgeting process.

To strengthen accountability of U.S. radiation detection equipment assistance programs, we recommend that the Secretary of State, working with the Secretaries of Defense and Energy and the Administrator of the National Nuclear Security Administration, take the following three actions:

- Ensure continued maintenance of all radiation detection equipment provided to foreign governments, including all handheld equipment previously provided by State and other agencies.

- Strengthen the *Strategic Plan for Interagency Coordination of U.S. Government Nuclear Detection Assistance Overseas* by including in the plan (1) specific performance measures to more effectively track and measure the progress U.S. programs are making toward achievement of interagency goals and objectives and (2) overall cost estimates and projected time frames for completion of U.S. radiation detection equipment assistance efforts to determine the amount of U.S. government resources required to achieve interagency goals and objectives and under what time frames these resources will be required.

- To the extent possible, account for all U.S.-funded radiation detection equipment provided to foreign governments, especially handheld equipment, by creating, maintaining, and sharing among all agencies a comprehensive list of such assistance.

Agency Comments and Our Evaluation

DOE and State agreed in general with our conclusions and recommendations. DOD had no written comments on our report. DOE, DOD, and State provided technical comments, which we incorporated as appropriate.

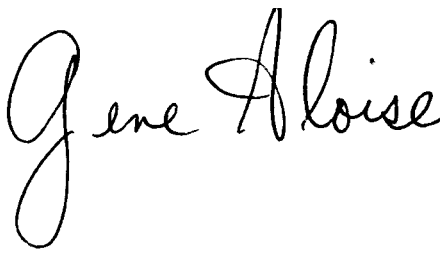
In its comments, DOE wrote that it does not believe that our report adequately reflects the department's efforts to maintain handheld radiation detection equipment provided by State and other agencies because DOE has a process in place to identify and replace handheld equipment used at sites where DOE maintains radiation portal monitors installed by State and other agencies. However, we believe that the extent of DOE's program is fairly presented because this effort does not cover all handheld equipment previously provided by State and other agencies—only equipment at the selected sites visited by DOE's maintenance teams is maintained. Further, the current operational status of the vast majority of handheld radiation detection equipment previously deployed by State and other agencies cannot be determined, in large part, because State has not maintained a comprehensive list of such equipment.

In its comments, State disagreed with our lack of emphasis on the "informal coordination role played by the department's front-line country program officers." State considers informal consultations between these officials and their interagency counterparts to be the "primary means of coordination of its efforts concerning radiation detection equipment provisions." State believes that such informal coordination is "much more important than coordination through the interagency working group or with State's in-country advisors." We have added language to our report noting the role of informal coordination in these programs. However, State's emphasis on them as its primary means of coordinating radiation detection assistance programs conflicts with its own planning documents. In its *Strategic Plan for Interagency Coordination of U.S. Government Nuclear Detection Assistance Overseas*, State claims that "a standing sub-working group, the International Nuclear Detection Interagency Working Group, will routinely coordinate nuclear detection, interdiction, and investigation assistance provided by U.S. government agencies." State's plan emphasizes the role of the interagency working group and states that such coordination is "vital to the overall success of U.S. nuclear detection assistance efforts." State's plan does not, however, emphasize or even mention informal coordination mechanisms as a method for State's coordination of U.S. radiation detection assistance programs.

State also believes that its in-country advisors are unfairly criticized for not maintaining comprehensive lists of radiation detection equipment in countries where they are responsible. State cited competing claims on the advisors' time, their many responsibilities within the EXBS program, and the limited resources at their disposal. However, State's own guidance to its in-country advisors states that the advisors' "general duties include…maintaining a record of the transfer of *all* U.S. government-provided nonproliferation export/border control equipment, and following-up to ensure that it is operational, being used for intended purposes at the locations previously specified by the recipient government, and in accordance with U.S. laws and policies."

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. We will then send copies of this report to the Secretary of Energy; the Secretary of Defense; the Secretary of State; the Secretary of Homeland Security; the Administrator, National Nuclear Security Administration; the Director, Office of Management and Budget; and interested congressional committees. We also will make copies available to others upon request. In addition, the report will be made available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff have any questions concerning this report, please contact me at (202) 512-3841 or aloisee@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs can be found on the last page of this report. Key contributors to this report include R. Stockton Butler, Julie Chamberlain, Nancy Crothers, Chris Ferencik, Gregory Marchand, and Jim Shafer.



Gene Aloise
Director, Natural Resources and Environment

List of Requesters

The Honorable Susan M. Collins
Chairman
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Norm Coleman
Chairman
Permanent Subcommittee on Investigations
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Carl Levin
Ranking Minority Member
Permanent Subcommittee on Investigations
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable John D. Dingell
Ranking Minority Member
Committee on Energy and Commerce
House of Representatives

Scope and Methodology

We performed our review of U.S. programs that provide radiation detection equipment assistance to foreign countries at the Departments of Energy (DOE), Defense (DOD), Homeland Security (DHS), and State (State) in Washington, D.C.; Los Alamos National Laboratory in Los Alamos, New Mexico; and Sandia National Laboratories in Albuquerque, New Mexico. Additionally, we also visited a "nonprobability" sample of six countries (Georgia, Greece, Macedonia, Russia, Ukraine, and Uzbekistan) where U.S. agencies have provided radiation detection equipment.[1] We visited these six countries to observe U.S.-funded radiation detection equipment in operation and to discuss the implementation of U.S. programs with foreign officials. We determined which specific countries to visit based on several criteria, such as historic U.S. government spending to provide radiation detection equipment within that country; countries receiving radiation detection equipment from multiple U.S. agencies and programs; countries receiving significant amounts of handheld equipment; countries with an in-country advisor stationed at a U.S. Embassy; countries where DOE maintains radiation detection equipment previously installed by State and other U.S. agencies; the current political environment within the country; and our ability to travel from country to county within a reasonable amount of time.

To address the progress U.S. programs have made in providing radiation detection equipment assistance to foreign countries, we reviewed documents and had discussions with officials from DOE's Second Line of Defense "Core" (SLD-Core) program, Cooperative Radiological Instrument Transfer project, and International Nuclear Export Control program; DOE's Office of General Counsel; and DOE's private sector contractors—SI International, Tetra Tech/Foster Wheeler, Bechtel-Nevada, TSA Systems, and Miratek. We also reviewed documents and interviewed relevant officials from DHS's Customs and Border Protection; State's Export Control and Related Border Security (EXBS) program, Nonproliferation and Disarmament Fund, and Georgia Border Security and Law Enforcement program; DOD's Weapons of Mass Destruction Proliferation Prevention Initiative (WMD-PPI), International Counterproliferation Program (ICP), and Defense Threat Reduction Agency; DOD's private sector contractor—Washington Group International; Los Alamos National

[1]Results from nonprobability samples cannot be used to make inferences about a population, because in a nonprobability sample some elements of the population being studied have no chance or an unknown chance of being selected as part of the sample.

Laboratory; Sandia National Laboratories; and Oak Ridge National Laboratory.

In addition, in October 2004, we visited Greece and Macedonia to interview Greek and Macedonian officials and to see U.S. radiation detection assistance provided in each country. In August 2005, we visited Georgia, Russia, Ukraine, and Uzbekistan to see where U.S. agencies have provided radiation detection equipment, to observe U.S.-funded radiation detection equipment in operation, and to discuss the implementation of U.S. programs with foreign officials. We also visited Belgium to meet with officials from the European Union to discuss radiation detection equipment assistance provided to foreign countries by that organization. During our visit to Greece, we spoke with Greek officials from the Greek Atomic Energy Commission; the Greek Ministry of Economy and Finance; and Customs Directorate General (Greek Customs Service). While in Greece, we toured two border crossings where DOE had installed radiation detection equipment through the SLD-Core program, SLD-Core installations at Athens International Airport, and a small research reactor in Athens that received physical security upgrades from DOE prior to the 2004 Olympic Games. While in Macedonia, we interviewed Macedonian officials and toured one border site where radiation detection equipment had previously been provided by the International Atomic Energy Agency and the Department of State.

While in Russia, we spoke with officials from the Federal Customs Service of Russia, ASPECT (a Russian company that develops radiation detection equipment), and DOE officials responsible for implementing the SLD-Core program in Russia. During our visit to Russia, we toured DOE installations at three airports and one seaport, the Federal Customs Service Central Command Center where Russian Customs officials gather and respond to portal monitor alarm data, and the Federal Customs Service Training Academy in Saint Petersburg. While in Uzbekistan, we spoke with officials from DOD's WMD-PPI program, Washington Group International, State and DOD officials at the U.S. Embassy in Tashkent, Uzbekistan's Institute of Nuclear Physics, and the Uzbek State Customs Committee. While in Uzbekistan, we toured the Tashkent Airport and a land border crossing where DOD had provided radiation detection equipment assistance through the WMD-PPI program. We also toured a small research reactor in Uzbekistan that previously received physical security upgrades from DOE, such as barbed-wire fences and video surveillance cameras. During our visit to Georgia, we spoke with officials from State's Georgia Border Security and Law Enforcement program, Department of Georgian State

Border Defense, Georgia Border Security Coordinating Group, and Georgia's Andronikashvili Institute of Nuclear Physics. We toured a land border crossing where State had previously provided radiation detection equipment and visited the Georgian Border Guard Training Academy. While in Ukraine, we spoke with DOE, DOD, and State officials at the U.S. Embassy in Kiev, Ukraine's Border Security Coordinating Group, Ukraine's Border Guard Service, and toured a land border crossing where State had previously provided radiation detection equipment that DOE currently maintains.

We discussed coordination issues with U.S. in-country advisors stationed in countries receiving U.S. assistance, including Armenia, Azerbaijan, Georgia, Kazakhstan, Malta, Moldova, Poland, Romania, and Ukraine. We developed a structured interview guide with a standard set of questions, which we asked all of our interviewees. We designed our interview guide with the assistance of a GAO methodologist. The practical difficulties of asking questions may introduce other types of errors. For example, differences in how a particular question is interpreted or the sources of information available to respondents can introduce unwanted variability into the responses, so we included steps to minimize such errors. We pretested the content and format of the interview guide with two individuals and made minor changes as appropriate.

We chose which specific in-country advisors to interview based on several criteria that include advisors who are stationed in the countries we would be visiting, advisors who are stationed in countries receiving significant amounts of radiation detection equipment from multiple U.S. agencies and programs, and advisors who are stationed in countries where DOE maintains radiation detection equipment previously installed by State and other U.S. agencies. Once we determined which specific advisors to interview, we created a list, which we then randomly ordered to provide an unbiased approach to conducting our interviews. Our goal was to talk with all the advisors on the list, but we knew that circumstances might prevent that so we used a randomized list to provide the order of contacting the advisors. We initiated contact with each advisor from this list, but if we could not establish contact with that advisor, we attempted to establish contact with the next advisor on our list. In some instances, we slightly modified our list due to unforeseen developments. For example, during our visit to the Republic of Georgia, we became aware of a Department of State project to install radiation detection equipment in Armenia opposite the Georgian border. Since this met our criteria for including a country in our pool of interviewees, we agreed it was appropriate, for the purposes of this

review, to add Armenia. We then contacted the in-country advisor stationed in Armenia to learn more about this project. In addition, we removed the responses from the advisor in Russia from our total list of advisors because he failed to respond to more than half of our questions and stated that his role in coordinating this type of assistance in Russia is nonexistent because DOE, through its SLD-Core program, conducts and coordinates radiation detection assistance provided to Russia. Lastly, we interviewed the advisor responsible for overseeing implementation of U.S. assistance to the Republic of Georgia because Georgia has received radiation detection equipment in the past from multiple U.S. programs. To obtain responses to our structured interview questions, we generally used e-mail and phone interviews. However, during our visits to Georgia and Ukraine, we were able to meet with the in-country advisors to obtain responses to our questions.

To assess the current and expected future costs of U.S. programs that provide radiation detection equipment assistance to foreign countries, we reviewed documents from DOE, DOD, State, and DHS detailing program expenditures, projected costs, and schedule estimates. We reviewed contract data for expenditures through the end of fiscal year 2005 and met numerous times with officials from DOE, DOD, State, and DHS to discuss the data. We obtained responses from key database officials to a number of questions focused on data reliability covering issues such as data entry access, internal control procedures, and the accuracy and completeness of the data. Follow-up questions were added whenever necessary. Caveats and limitations to the data were noted in the documentation where necessary. For example, in our discussions with the DOD official who manages its financial database, she stated that program support costs were prorated between WMD-PPI's projects based on usage. Therefore, the expenditure amount added for the program support cost for Uzbekistan is a reasonable approximation but may not be exact. We determined that the data we received were sufficiently reliable for the purposes of this report based on work we performed.

To identify challenges U.S. programs face in deploying and operating radiation detection equipment in foreign countries, we examined documents and spoke with officials from DOE, DOD, State, DHS, Los Alamos National Laboratory, Sandia National Laboratories, Washington Group International, and several nongovernmental entities, including the Transnational Crime and Corruption Center at American University. Additionally, during our visits to Georgia, Greece, Macedonia, Russia, Ukraine, and Uzbekistan we spoke with various foreign officials to better

understand the challenges they face in operating radiation detection equipment provided by U.S. programs. We also attended a National Academies of Science conference on nonintrusive technologies for improving the security of containerized maritime cargo and the National Cargo Security Council conference on radiation detection and screening.

To understand the steps U.S. programs take to coordinate radiation detection equipment assistance provided by multiple U.S. programs, we met with program officials from each of the agencies providing assistance and reviewed pertinent documents, including individual agency's assistance plans and State's *Strategic Plan for Interagency Coordination of U.S. Government Nuclear Detection Assistance Overseas*. We also assessed coordination through the interagency group headed by State and met with the lead official of that effort—the Director of Export Control and Cooperation—and members of his staff. We discussed coordination issues with U.S. advisors stationed in countries receiving U.S. assistance including Armenia, Azerbaijan, Georgia, Kazakhstan, Malta, Moldova, Poland, Romania, and Ukraine. Several of these advisors were responsible for tracking assistance efforts in more than one country. For example, the advisor stationed in Poland is also responsible for Estonia, Latvia, and Lithuania. Finally, we relied on our previous reviews of the U.S. nonproliferation programs within DOE, DOD, and State. At State, we interviewed the Coordinator of U.S. Assistance to Europe and Eurasia and met with officials from the Bureau of International Security and Nonproliferation. We also relied on related prior GAO reports. We performed our review from April 2005 to February 2006 in accordance with generally accepted government auditing standards.

Additional Information on Radiation Detection Assistance Programs at the Department of Energy

The Department of Energy's (DOE) Second Line of Defense "Core" program provides comprehensive radiation detection equipment packages to foreign countries to combat nuclear smuggling. Its associated maintenance program focuses on maintaining equipment previously provided by the Department of State and other U.S. agencies. In addition, DOE implements another program within its Office of Global Threat Reduction that provides handheld radiation detection equipment to foreign countries.

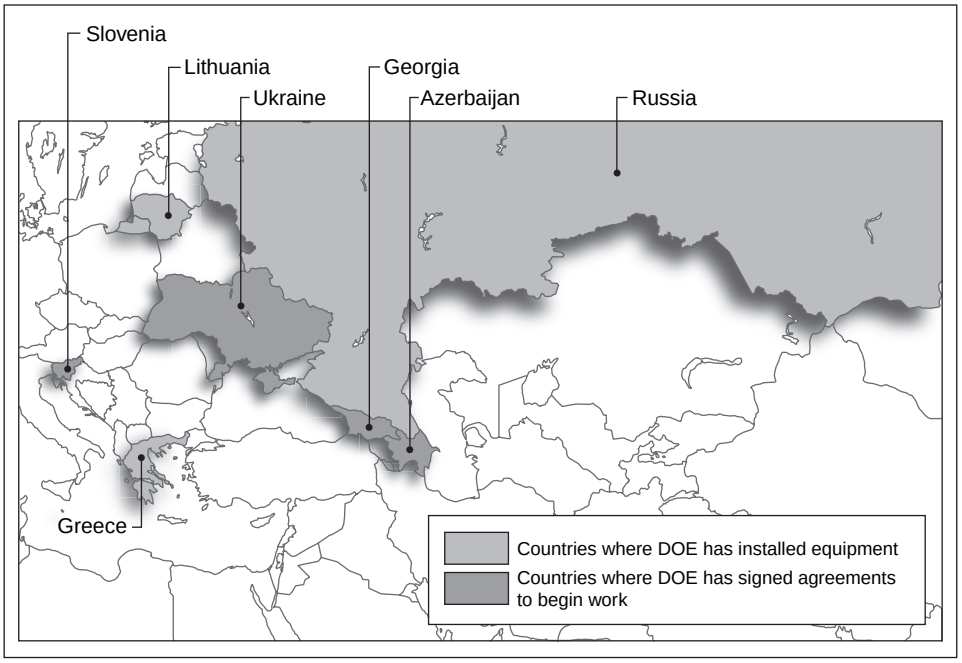
Second Line of Defense "Core" Program

In 1998, DOE established the Second Line of Defense "Core" (SLD-Core) program, which has primarily worked to help Russia detect illicit nuclear materials trafficking by providing radiation detection equipment to the Federal Customs Service of Russia. DOE recently expanded its efforts in the SLD-Core program to include countries other than Russia. SLD-Core activities focus on providing radiation detection equipment, software and hardware communications equipment and support, and training/processes to foreign countries' border sites. The radiation detection equipment DOE provides is U.S.-made, except in Russia where Russian-made equipment is installed. The communication systems DOE installs provide important information on the radiation detector alarms, such as the radiation profile of the substance detected. In addition to training at sites where equipment is installed, DOE provides other training courses at the Hazardous Materials Management and Emergency Response training center at Pacific Northwest National Laboratory.

Through the end of fiscal year 2005, DOE's SLD-Core program had completed installation of radiation portal monitors at 83 sites in Greece, Lithuania, and Russia at a cost of about $130 million. In fiscal year 2005, DOE planned to complete 29 sites in seven countries: Azerbaijan, Georgia, Kazakhstan, Russia, Slovenia, and Ukraine. However, due to delays in signing implementing agreements with the governments of some of these countries, many of these sites were not completed. As of December 2005, DOE had signed implementing agreements with Azerbaijan, Georgia, Slovenia, and Ukraine, and plans to commence work in these countries in fiscal year 2006 (see fig. 6). Additionally, the SLD-Core program will be installing radiation detection equipment at some foreign ports, referred to as "feeder" ports, to assist the work done by DOE's Megaports Initiative.[1]

[1]For more information on the Megaports Initiative, see GAO-05-375.

Figure 6: Map of Countries Where DOE's SLD-Core Program Has Installed Equipment and Signed Agreements to Begin Work



Source: DOE.

DOE has been cooperating with the Federal Customs Service of Russia since 1998, and, coupled with the large number of sites where Russia has installed equipment on its own, the nature of DOE's work through the SLD-Core program in Russia is evolving. DOE is transitioning its activities in Russia from installation of new equipment to sustainability of equipment it has previously installed. DOE and the Federal Customs Service of Russia signed an agreement in April 2005 that details plans for the long-term sustainability of radiation detection equipment DOE has provided to Russia. DOE is also now supporting other activities in Russia, such as regional radiation alarm response exercises and rechecks of previously installed equipment.

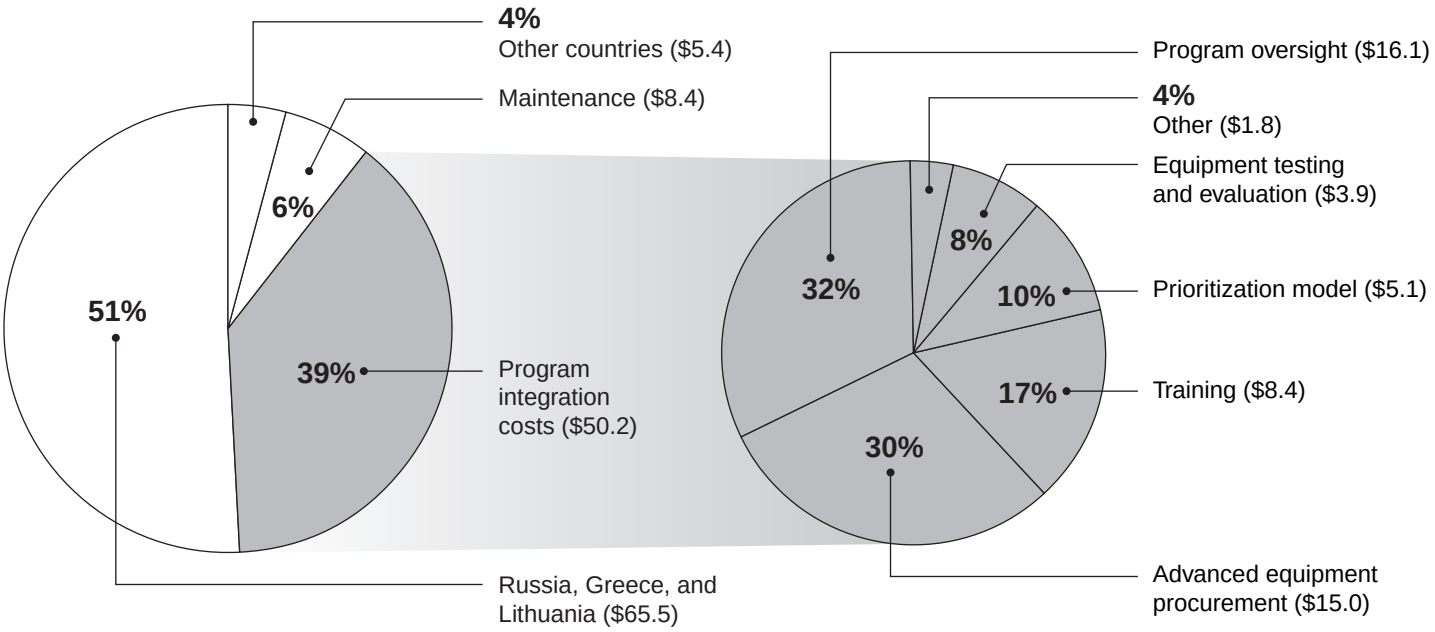
Through the end of fiscal year 2005, DOE spent about $66 million installing radiation portal monitors at 78 border sites in Russia, 4 sites in Greece, 1 site in Lithuania, and to conduct preliminary site assessments in other countries. DOE spent about $50 million on various program integration activities, which are costs not directly associated with installing equipment at a particular site within a specific country. Of this amount, about $15

million was spent on advanced equipment procurement activities, which include the purchase and storage of portal monitors and associated spare parts for use at future installations. DOE also spent almost $16 million on program oversight activities, such as program cost and schedule estimating, technical assistance provided by participating national laboratories, and translation services. In addition, DOE spent over $5 million to develop and maintain its prioritization model for the SLD-Core program, maintained by Los Alamos National Laboratory, which is used to rank foreign countries, as well as specific sites within a country, in terms of their attractiveness to a potential nuclear material smuggler. DOE also spent about $4 million on equipment testing and evaluation to test the effectiveness and performance of the radiation detection equipment that it provides through the program. DOE spent over $8 million on the development of materials and curricula for training foreign customs agents on the use of radiation detection equipment.[2] Finally, DOE spent almost $2 million on other program integration activities. See figure 7 for more information on program integration expenditures.

[2]Additionally, some of these funds were spent to pay for training of U.S. Customs and Border Protection officials at the Hazardous Materials Management and Emergency Response training center at Pacific Northwest National Laboratory.

Figure 7: DOE Spending on the SLD-Core Program through the End of Fiscal Year 2005

Dollars in millions



Source: GAO analysis of DOE data.

Note: Figures have been rounded.

DOE's Maintenance of Equipment Previously Installed by Other U.S. Agencies

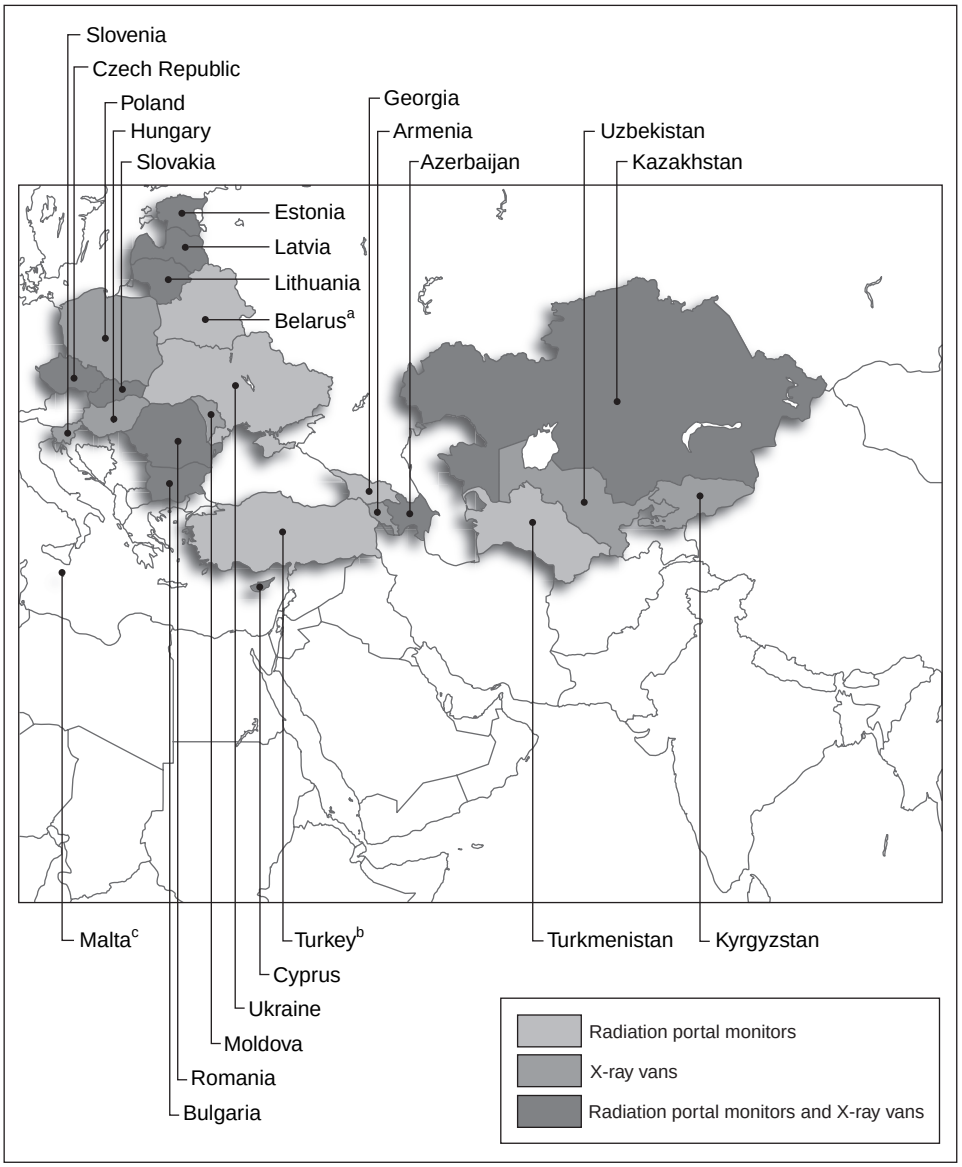
In 2002, DOE assumed the responsibility for maintaining certain radiation detection equipment, such as radiation portal monitors and X-ray vans with gamma radiation detection capability, previously installed in 23 countries by State and other U.S. agencies (see fig. 8). Through the end of fiscal year 2005, DOE has successfully conducted maintenance and sustainability activities for this equipment in 21 of 23 countries.[3] DOE contractors service these radiation portal monitors annually and X-ray vans biannually. Since 2002, DOE has spent about $8 million to provide spare parts, preventative

[3]DOE officials told us that, although Belarus has received a significant amount of radiation detection equipment from U.S. programs, it is currently prohibited from maintaining this equipment due to restrictions placed on U.S. assistance to Belarus through State's Selective Engagement Policy, which was instituted in 1997. Additionally, at the request of the government of Turkey, DOE no longer maintains radiation detection equipment provided to that country by State.

maintenance, and repairs for this equipment.[4] DOE anticipates that the future scope of the maintenance program will be reduced as the SLD-Core program expands into countries where equipment was previously installed by other U.S. agencies.

[4]State, through an interagency agreement with DOE, annually provides DOE with a portion of the funding required to maintain the equipment that State and other U.S. agencies previously installed. Through fiscal year 2005, State has provided DOE with approximately $3.2 million, which has been about one-third of the required funding necessary to conduct these activities. We have included these expenditures in the total expenditures for DOE's SLD-Core program.

Figure 8: Map of Countries Where DOE Maintains Equipment Previously Provided by Other U.S. Agencies



Source: DOE.

[a]DOE has not maintained equipment DOD provided to Belarus.

[b]At the request of the government of Turkey, DOE has not maintained equipment State provided to that country.

[c]State provided Malta with both radiation portal monitors and X-ray vans.

If DOE is notified that there are problems with the radiation portal monitors in a certain country, they will add this repair onto a scheduled maintenance trip of a nearby country. According to the DOE maintenance contractor, this occurs 5-6 times a year. However, DOE officials often are not made aware of specific problems with equipment prior to arriving at the site to conduct regular servicing. As a result, DOE's maintenance teams must be equipped with a wide variety of components in the event that major repairs are required. At times, maintenance teams have had to improvise temporary repairs for equipment due to a lack of necessary replacement parts. For example, during our visit to a border site in Ukraine, DOE's maintenance team discovered that a truck had struck and damaged a pole holding the wiring for the radiation detection equipment's communication systems. The truck's impact caused the wiring to snap in numerous places. Because the maintenance team was unaware of this damage prior to our arrival at the site, it had to repair the cable using connectors rather than replacing the entire wire as they would have preferred to do. DOE officials told us that, during the next scheduled maintenance visit to this site, the wiring will be replaced.

Cooperative Radiological Instrument Transfer Project

In 2004, DOE established the Cooperative Radiological Instrument Transfer project (CRITr) within its Global Threat Reduction Initiative.[5] In this project, DOE partners with Interpol, which provides knowledge of foreign law enforcement to determine the countries to select for assistance and coordinates all CRITr training logistics within its member countries.[6] Through the CRITr project, DOE collects and refurbishes handheld radiation detection devices deemed surplus by DOE national laboratories and provides this equipment to first responders in foreign countries. The handheld radiation detection equipment DOE provides through CRITr

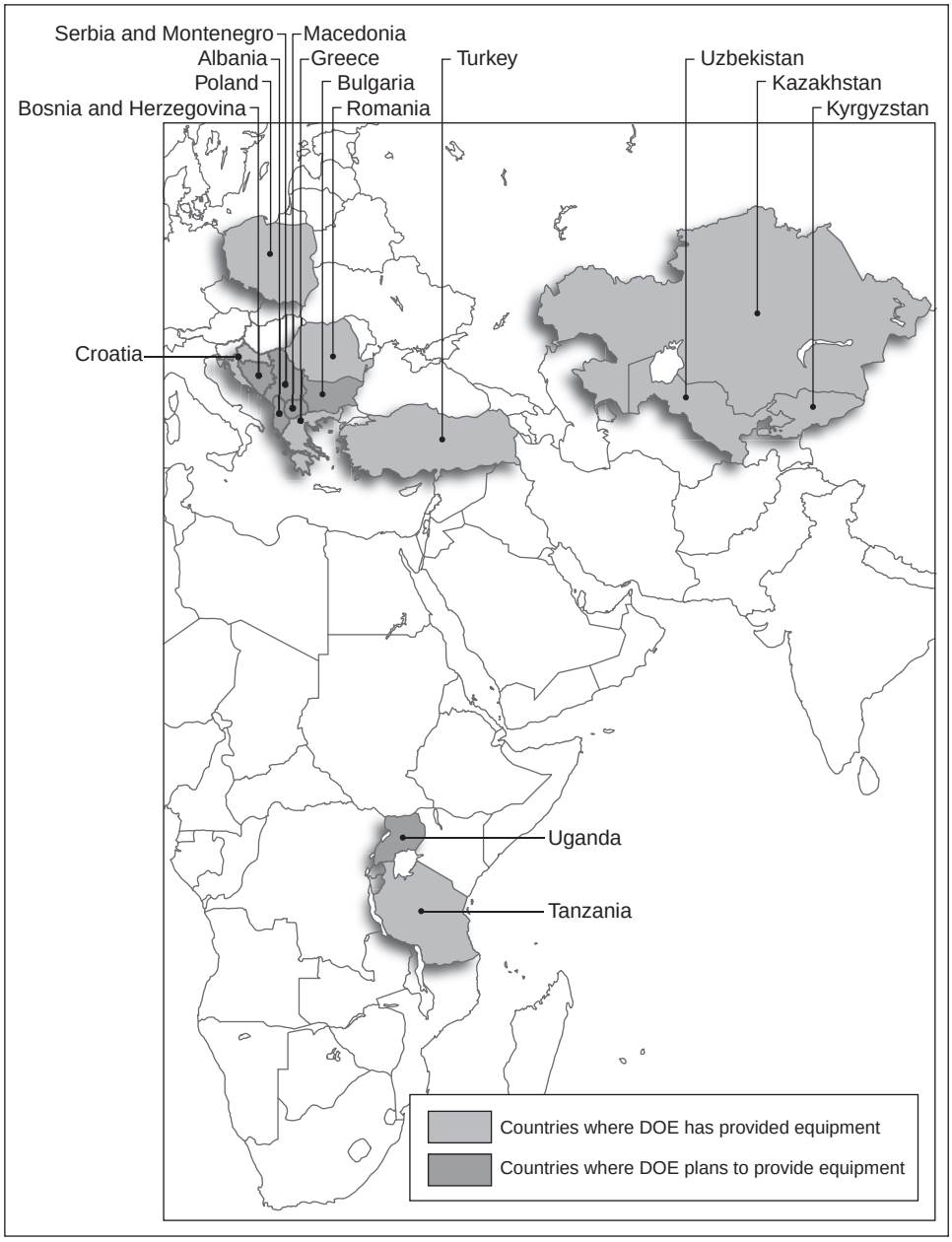
[5]The Global Threat Reduction Initiative consolidated DOE's efforts to identify, secure, remove, and/or facilitate disposition of high-risk nuclear and other radioactive materials around the world that pose a potential threat to the international community. Within this office, DOE's International Radiological Threat Reduction program works to locate, identify, recover, consolidate, and enhance the security of dangerous radioactive materials outside the United States.

[6]Interpol is the largest international police organization focusing on cross border police cooperation.

consists mostly of survey meters and does not include radiation pagers.[7] In addition to providing radiation detection equipment through the CRITr project, DOE provides training for foreign officials on how to use the equipment. DOE originally provided assistance through the CRITr project in Greece by providing over 100 handheld radiation detection devices prior to the Olympic Games in 2004. According to DOE officials, in fiscal year 2004, with Interpol's assistance, DOE selected seven additional countries to receive assistance through the project: Croatia, Kazakhstan, Kyrgyzstan, Poland, Romania, Turkey, and Uzbekistan (see fig. 9). DOE also provided radiation detection equipment to Tanzania in fiscal year 2005. Through the CRITr project, DOE spent almost $0.5 million in fiscal year 2004 and almost $0.6 million in fiscal year 2005, according to DOE officials. DOE has budgeted almost $0.4 million for fiscal year 2006 to supply instruments and training to law enforcement officials in Albania, Bosnia and Herzegovina, Bulgaria, Macedonia, Serbia and Montenegro, and Uganda and to provide additional equipment to Tanzania.

[7]In addition to the CRITr project, DOE's International Radiological Threat Reduction program has provided some radiation detection equipment to nuclear regulatory bodies and national laboratories in foreign countries. This equipment is intended to help these entities locate and identify orphaned radiological sources within their countries, rather than for law enforcement purposes. As a result, we did not include this part of DOE's radiation detection assistance in our review.

Figure 9: Map of Countries Where DOE's CRITr Project Has Provided and Plans to Provide Radiation Detection Equipment



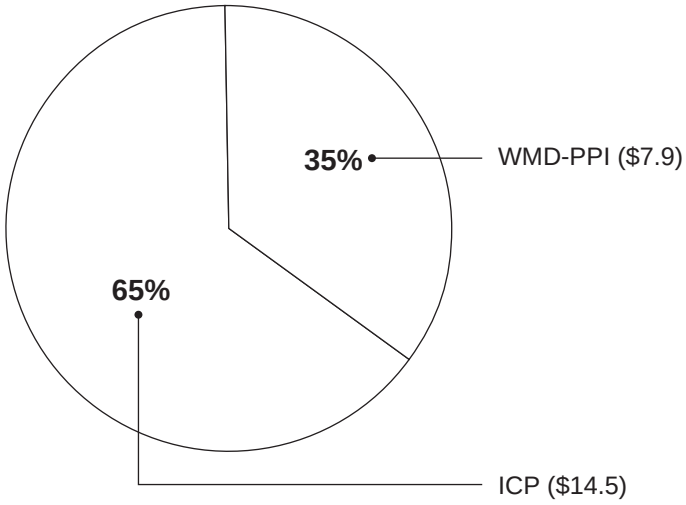
Source: DOE.

Additional Information on Radiation Detection Assistance Programs at the Department of Defense

The Department of Defense (DOD) implements two programs that assist other countries in combating nuclear smuggling: the Weapons of Mass Destruction Proliferation Prevention Initiative (WMD-PPI) and the International Counterproliferation Program (ICP). As figure 10 shows, DOD spent about $22 million on these programs between fiscal years 1994 and 2005.

Figure 10: DOD Spending on Radiation Detection Equipment Assistance Programs through the End of Fiscal Year 2005

Dollars in millions



Source: GAO analysis of DOD data.

Note: Figures have been rounded.

Weapons of Mass Destruction Proliferation Prevention Initiative

WMD-PPI was created as a project within the Cooperative Threat Reduction Program[1] and is implemented by DOD's Defense Threat Reduction Agency with oversight and policy guidance from the Office of

[1]Congress passed the Soviet Nuclear Threat Reduction Act of 1991, Pub. L. No. 102-228 (1991), popularly referred to as the Nunn-Lugar Act, authorizing U.S. threat reduction assistance to the former Soviet Union, due to concerns about the safety and security of Soviet nuclear weapons. The legislation authorized funding to assist the former Soviet Union with its efforts to (1) destroy nuclear, chemical, and other weapons; (2) transport, store, disable, and safeguard weapons in connection with their destruction; and (3) establish verifiable safeguards against the proliferation of such weapons.

the Undersecretary of Defense for Policy. In the 2003 National Defense Authorization Act, the Congress created WMD-PPI with a $40 million budget to prevent the proliferation of weapons of mass destruction (WMD) and related materials and technologies from the former Soviet Union.[2] WMD-PPI seeks to accomplish this mission through three projects: the Uzbekistan Land Border project, the Caspian Sea Maritime Proliferation Prevention project in Azerbaijan and Kazakhstan, and the Ukraine Land and Maritime Border projects.

- In Uzbekistan, DOD is installing radiation portal monitors at 17 sites; 11 of which were completed by the end of fiscal year 2005. To date, WMD-PPI has spent over $6 million to install radiation portal monitors in Uzbekistan. However, this spending total is misleading because DOD has obligated over $19 million to three contracts for program costs associated with installing radiation detection equipment, such as communication systems and training. Because DOD only executes spending on these contracts after all work has been completed, these contracts were not paid in fiscal year 2005. DOD projects that the Uzbekistan Portal Monitoring project will cost about $54 million and be completed in fiscal year 2009. Once these portal monitors are installed in fiscal year 2006, DOE will maintain the equipment within its Second Line of Defense "Core" program.

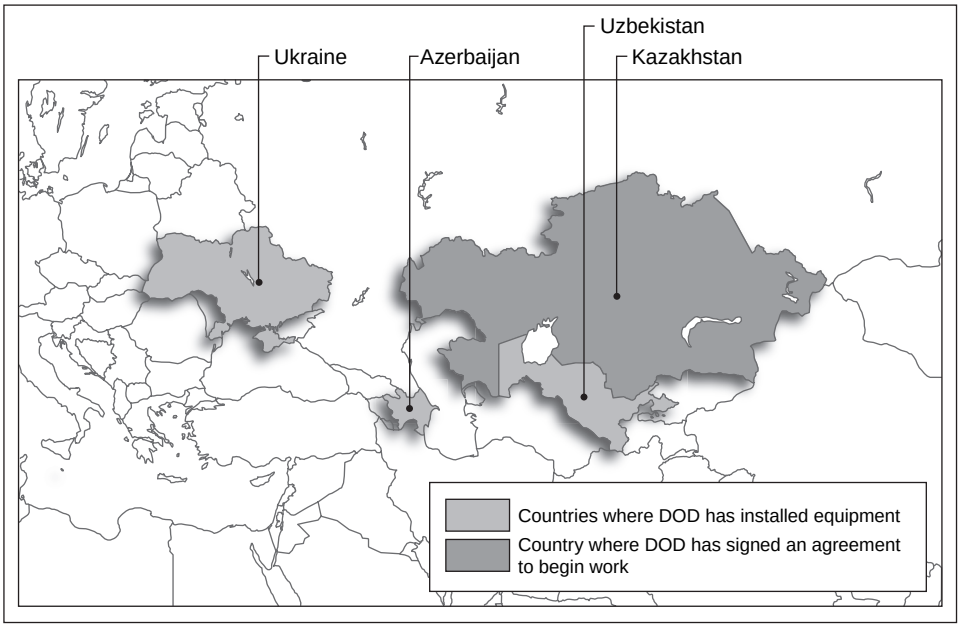
- The Caspian Sea project focuses on improving command and control, surveillance, detection and interception of WMD, operation, and sustainability along the Caspian Sea border by providing training and associated equipment, including handheld radiation detection devices. In Azerbaijan, the project's cost is estimated at $63.4 million and, in Kazakhstan, it is estimated at $60.6 million.

- In Ukraine, WMD-PPI is implementing a similar project along the Black Sea border. The Maritime Border Security Project in Ukraine is expected to cost over $39 million and will be finished in fiscal year 2009. The Ukrainian Land Border Forces Proliferation Prevention project focuses on securing the points of entry and the green border—border that is not a formal crossing point between countries—between Moldova and Ukraine. It seeks to improve Ukraine's capabilities to detect and interdict WMD and related materials by providing equipment and training. Radiation detection equipment, such as pagers, is included in

[2]Pub. L. No. 107-314 (2002).

this equipment assistance. DOD expects this project will cost over $51 million and be completed in fiscal year 2008.

Figure 11: Map of Countries Where DOD's WMD-PPI Program Has Provided Radiation Detection Equipment or Signed Agreements to Install Equipment



Source: DOD.

International Counterproliferation Program

The 1995 National Defense Authorization Act directed DOD and the Federal Bureau of Investigation to establish a program to improve efforts to deter the possible proliferation and acquisition of WMD and related materials across the borders and through the former Soviet Union, the Baltic region, and Eastern Europe.[3] Similarly, the 1997 National Defense Authorization Act directed DOD to work with U.S. Customs to carry out programs to assist customs officials and border guards in those regions in preventing unauthorized transfer and transportation of WMD and related materials.[4] DOD established ICP in response to these requirements. The

[3]Pub. L. No. 103-337 (1994).

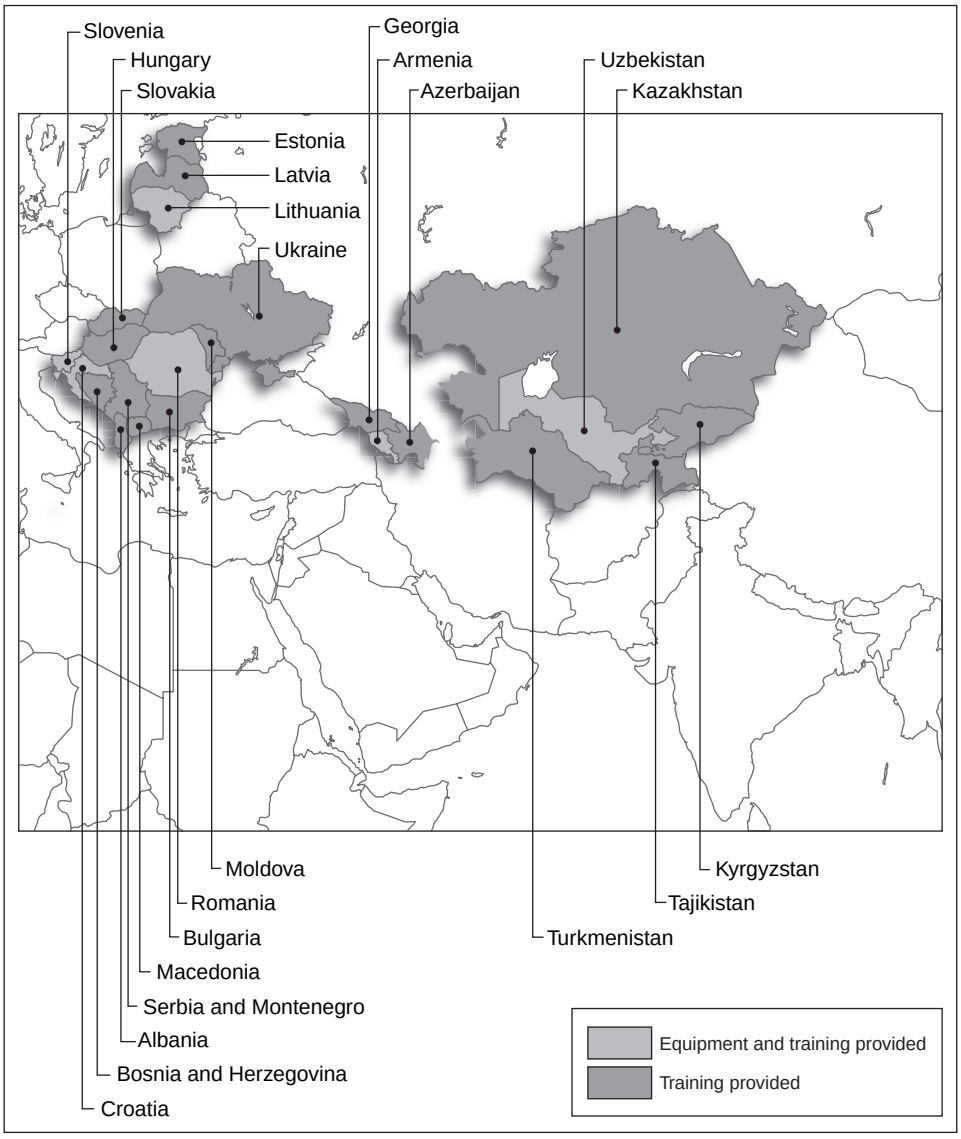
[4]Pub. L. No. 104-201 (1996).

program is implemented by the Defense Threat Reduction Agency. According to DOD officials, ICP policy guidance comes from DOD's Eurasia Department because of its strong ties and contacts within the regional scope of the program. Through ICP, DOD provides a range of law enforcement and border security training and equipment, including handheld radiation detection equipment, to foreign law enforcement officials in participating countries. According to an ICP official, the program does not currently provide much radiation detection equipment because, in many countries, other U.S. programs have already provided such equipment. ICP coordinates with the Federal Bureau of Investigation to conduct training of foreign government personnel. In some participating countries, ICP provides both equipment and training, and in others it provides only training, depending upon the needs of the country.

Through the end of fiscal year 2005, DOD had spent over $14 million to provide radiation detection equipment and radiation detection training to foreign countries through ICP. Of this amount, DOD spent over $0.5 million to provide handheld radiation detection equipment to six countries (see fig. 12). The remaining funds were spent on a variety of training related to radiation detection, WMD interdiction, and crime scene investigation.[5] Figure 13 shows the flowchart of training DOD provides to participating countries through ICP.

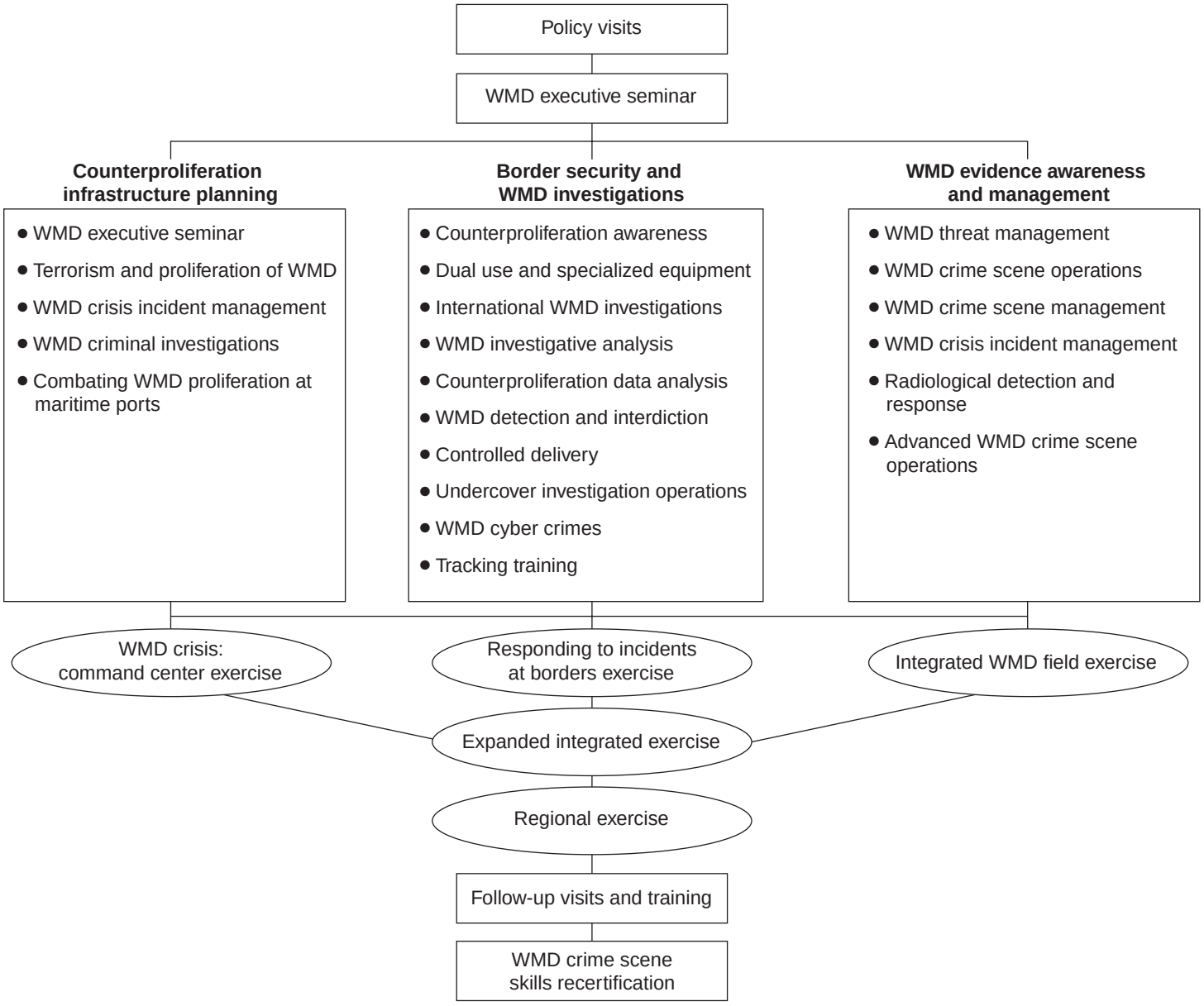
[5]Most ICP training courses do not focus solely on radiation detection training but have a module during the training on radiation detection. Therefore, according to a DOD official, breaking out the specific cost of radiation detection training is difficult. Only one ICP training course focuses solely on radiation detection.

Figure 12: Map of Countries Where DOD's ICP Has Provided Radiation Detection Equipment



Source: DOD.

Figure 13: Flowchart of ICP Training Courses



Source: DOD.

According to ICP officials, the program has worked in 23 countries, including Bosnia and Herzegovina, Bulgaria, Croatia, Serbia and Montenegro, Ukraine, and Uzbekistan. In the National Defense

Authorization Act of Fiscal Year 2005,[6] DOD was given permission by the Congress to expand ICP's scope outside of the original region. According to a DOD official, ICP plans to initiate programs in Malaysia, Singapore, and Pakistan.

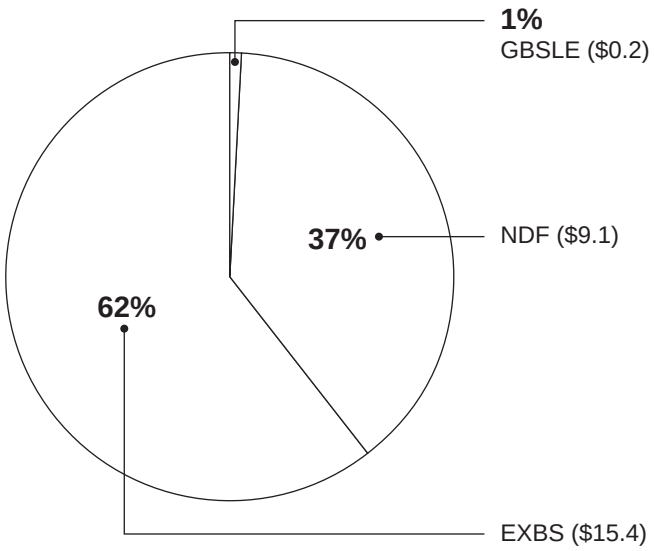
[6]Pub. L. No. 108-375 (2004).

Additional Information on Radiation Detection Assistance Programs at the Department of State

Since fiscal year 1994, the Department of State (State) has provided various types of radiation detection equipment assistance to 31 foreign countries. State has provided this assistance, primarily through three programs (1) the Export Control and Related Border Security program (EXBS), (2) the Nonproliferation and Disarmament Fund (NDF), and (3) the Georgia Border Security and Law Enforcement program (GBSLE). As figure 14 shows, State spent about $25 million from fiscal year 1994 through fiscal year 2005 on radiation detection equipment assistance to foreign countries.

Figure 14: State Spending on Radiation Detection Equipment Assistance Programs through the End of Fiscal Year 2005

Dollars in millions



Source: GAO analysis of State data.

Note: Figures have been rounded.

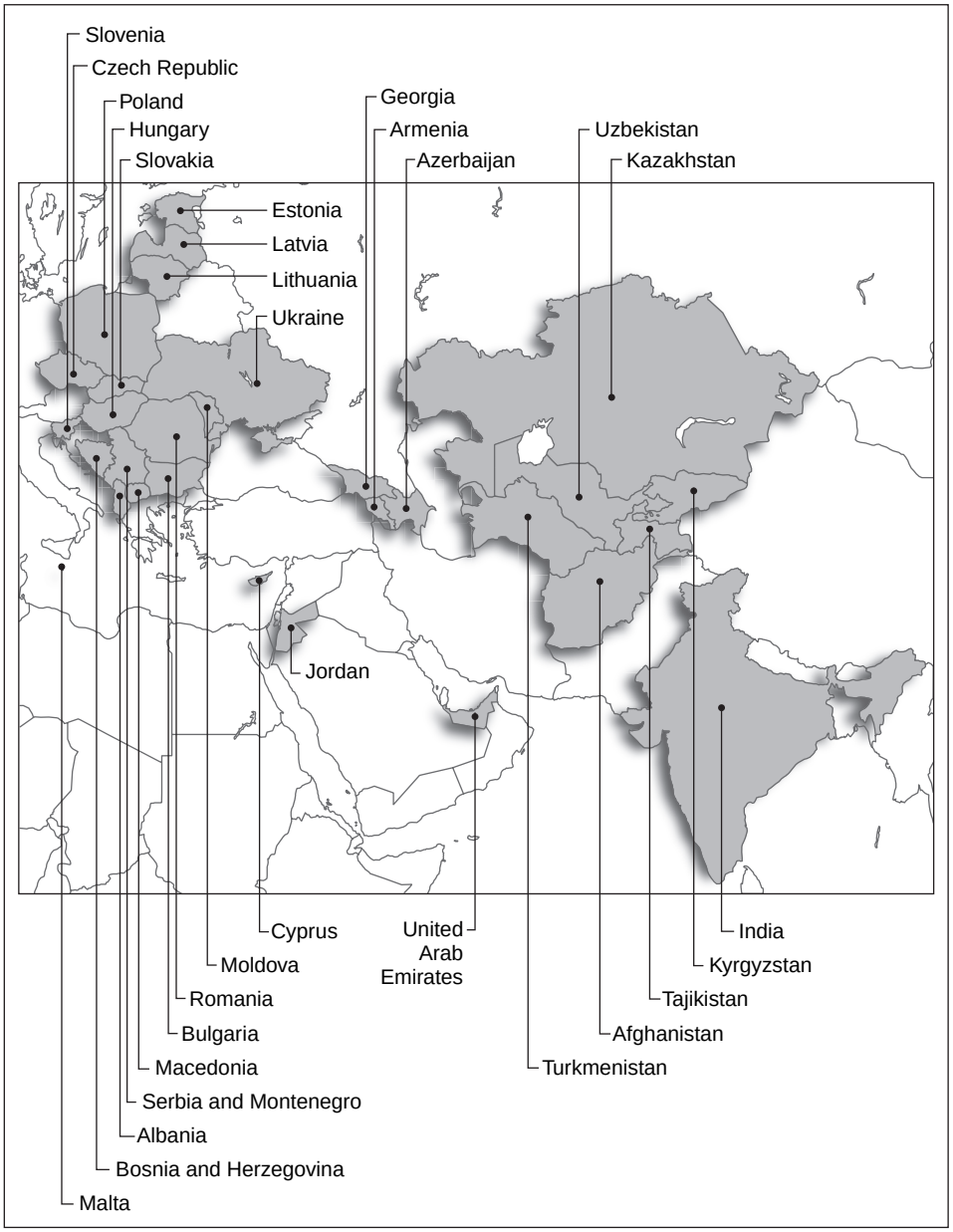
Export Control and Related Border Security Program

State's Export Control and Related Border Security program, which began in 1998, is a comprehensive U.S. government effort to help foreign countries improve their export controls and border security capabilities.[1] The program provides a broad array of assistance to foreign countries, such as workshops to assist foreign countries draft and implement new export control laws and regulations, as well as various types of equipment and training for foreign border control agencies. Assistance provided through the program focuses on five core areas: (1) laws and regulations, (2) licensing, (3) enforcement, (4) government and industry cooperation, and (5) interagency cooperation and coordination. While the original focus of the program was to provide assistance to potential "source countries" in the former Soviet Union or to countries that produce munitions or dual-use items,[2] State later expanded the program's focus to include states on potential smuggling routes in Eastern and Central Europe, East Asia, Central Asia, the Caucasus, Latin America, and Africa, as well as potential "source countries" in South Asia and countries with major transshipment hubs in the Mediterranean, Middle East, and Southeast Asia. Through the end of fiscal year 2005, State has spent $15.4 million to provide a variety of radiation detection equipment assistance to 30 countries (see fig. 15).

[1]State's Bureau of International Security and Nonproliferation manages the Export Control and Related Border Security program. In 1998, an export control assistance account was established as part of the Nonproliferation, Anti-terrorism, De-Mining and Related Programs account of the Foreign Operations Appropriations Act. Pub. L. No. 105-118 (1997). In fiscal year 2000, this program evolved into the Export Control and Related Border Security program.

[2]A "source country" is a country known to possess material that can be used to develop a weapon of mass destruction. For example, a country known to possess plutonium or highly enriched uranium would be considered a "source country."

Figure 15: Map of Countries Where State's Export Control and Related Border Security Program Has Provided Radiation Detection Equipment



Source: State.

In addition, State also provided funding to the Department of Homeland Security's (DHS) Customs and Border Protection (formerly known as U.S. Customs) to implement certain types of radiation detection equipment assistance on behalf of its Export Control and Related Border Security program. Specifically, from fiscal year 1999 through 2005, DHS and its predecessor organizations spent about $10.5 million to provide radiation detection equipment and training to 30 countries. This equipment included, among other things, radiation pagers that border officials wear on their belts and radioactive isotope identification devices. Training provided by DHS included assistance in operating the X-ray vans equipped with radiation detectors, hands-on instruction in using radiation detection equipment to detect nuclear smuggling, teaching techniques for investigating smuggling operations, and tracking the movements of smugglers between ports of entry. In addition, DHS also stationed 22 in-country advisors covering 25 countries, on behalf of the program, to assist in implementing and coordinating U.S. government assistance in these countries. In February 2005, State, through its EXBS program, assumed direct responsibility of the in-country advisors from DHS. According to State officials, this management change was done to better address coordination and responsiveness issues in the advisor program.

Russian Federal Customs Service Central Command Center

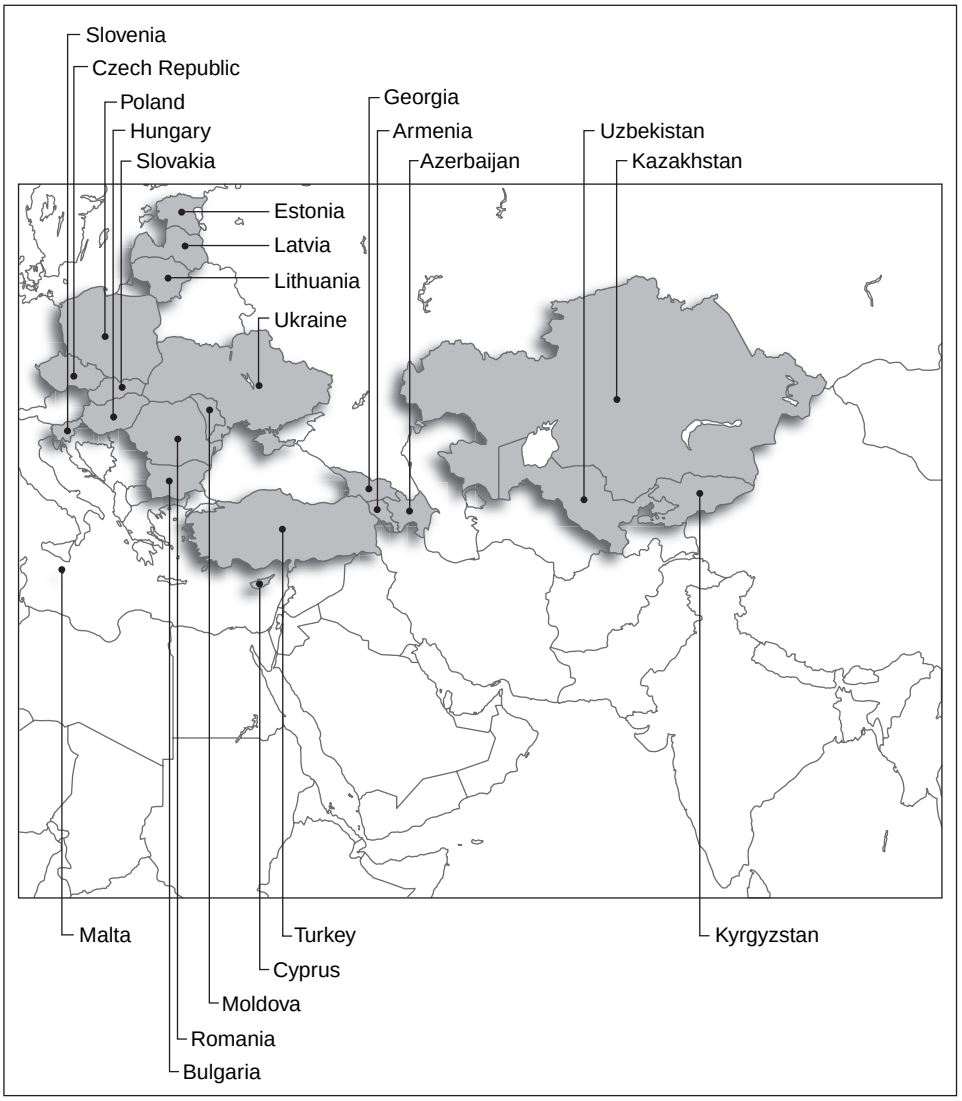
In addition to providing radiation detection equipment assistance to foreign countries, State has also provided other types of assistance designed to better ensure the effectiveness of radiation detection equipment previously provided to foreign countries through U.S. programs. Specifically, in fiscal year 2005, State, through its EXBS program, spent about $1.5 million to fund construction of a national command center for the Federal Customs Service of Russia. Through this project, portal monitors located at various Russian border sites can be directly linked to a national command center, located at Federal Customs Service headquarters in Moscow. By doing so, alarm data can be simultaneously evaluated by Russian officials both at the site and up the chain of command, thus establishing redundant layers of accountability for responding to alarms. For example, when a portal monitor alarms at a specific land border site, airport, or seaport, information will immediately be sent from the site directly to the command center enabling Russian officials to identify which specific site an alarm occurred at, quickly analyze it, and respond appropriately. Prior to the initiation of this project, the Federal Customs Service did not have an effective way to coordinate and integrate all of the information at its borders. While the total scope of work to be done at the command center has not been clearly defined yet, State officials told us that the primary activity will be to maintain and respond to alarm data from the various

border sites. State officials we spoke with stated that linking alarm data from the local alarm station at individual border sites to a centrally located command center will enhance Russia's ability to (1) ensure that U.S. provided equipment is being properly operated, (2) mitigate the possibility of corruption or other nefarious acts being committed by its border guards, and (3) effectively respond to any alarms and/or seizures of illicitly trafficked nuclear or radiological materials.

Nonproliferation and Disarmament Fund

State's Nonproliferation and Disarmament Fund spent approximately $9.1 million, from fiscal year 1994 through 2001, to provide various types of radiation detection equipment assistance to 21 countries (see fig. 16). This assistance included vehicle portal monitors, mobile vans equipped with X-ray machines and radiation detection equipment, handheld radiation detectors, dosimeters, and radiation pagers. For example, in fiscal year 2001, State approved a $1.3 million NDF project to install vehicle portal monitors at 16 sites in one country, and a $0.5 million project to assist another country's upgrading its domestically produced portal monitors in order to better detect nuclear material. State also provided $0.8 million to DHS to provide radiation detection equipment and training to seven countries under a project called "Project Amber." Of this amount, DHS spent $0.6 million to implement the project in these countries. In fiscal year 2001, State began to consolidate its assistance provided to foreign countries for the purposes of combating nuclear smuggling under its EXBS program. However, State officials told us that they have not yet determined whether or not they will fund any future projects to provide radiation detection equipment to foreign countries through NDF. As a result, it is uncertain how many other projects State will fund through NDF, in what countries these projects will be conducted, or how much they will cost.

Figure 16: Map of Countries Where State's Nonproliferation and Disarmament Fund Has Provided Radiation Detection Equipment



Source: State.

Georgia Border Security and Law Enforcement Program

State's Georgia Border Security and Law Enforcement program focuses on developing the Republic of Georgia's border infrastructure by assisting the Georgian Customs Administration and Georgian Border Guards in gaining control of the country's borders and seacoast and strengthening its border

security against any type of crime. The program primarily focuses on establishing a transparent land border regime with Azerbaijan, Armenia, and Turkey and strengthening border security against nuclear smuggling. As such, the program has provided assistance to enhance the Georgian Border Guards' capabilities to prevent, deter, and detect potential weapons of mass destruction smuggling. Through the program, State has provided a limited amount of radiation detection equipment assistance. Specifically, in fiscal year 1999, State spent $0.2 million to provide 137 radiation detection pagers to Georgia. According to State officials, no radiation detection equipment has been provided through the program since fiscal year 1999. However, State officials also told us that they have not yet determined if they will provide any additional radiation detection equipment assistance through the program to the Republic of Georgia in the future. As a result, it is uncertain what additional equipment State might provide or how much it will cost.

Comments from the Department of Energy

Department of Energy
National Nuclear Security Administration
Washington, DC 20585

February 15, 2006

Mr. Gene Aloise, Director
Natural Resources and Environment
U.S. Government Accountability Office
Washington, D.C. 20584

Dear Mr. Aloise:

The National Nuclear Security Administration (NNSA) appreciates the opportunity to review the Government Accountability Office's (GAO) draft report GAO-06-311, "COMBATING NUCLEAR SMUGGLING: Corruption, Maintenance, and Coordination Problems Challenge U.S. Efforts to Provide Radiation Detection Equipment to Other Countries." We understand that the intent of the audit was to determine (1) the progress that has been made in providing radiation detection equipment to foreign governments; (2) challenges facing programmatic efforts; and (3) steps being taken to coordinate efforts to combat nuclear smuggling.

The two main issues raised in the report - combating corruption and upgrading older equipment - are long-time priorities for the Second Line of Defense (SLD) Program. The SLD Program is structured to fully address each of these issues.

Through the SLD Program, NNSA has in place a carefully thought through and active effort to assist host governments in combating illicit trafficking in nuclear and other radiological material that is not fully reflected in this report. The combination of strategic planning for deployments, equipment installation (including both radiation monitoring and communication equipment), comprehensive training, and ongoing maintenance support provides host governments with powerful tools to carry out this key component of their nonproliferation activities. The program is now actively underway in seven countries, with negotiations ongoing in four others. We have clear, articulated priorities for where we work, but it is important to underline that the program is working with sovereign countries and the pace at which they embrace this program remains to a great extent out of the control of SLD.

The SLD programs addresses corruption by requiring that all radiation portal monitors deployed under the program be networked to at least one central alarm station. The associated communications software requires reporting by a host country operator on the cause of the alarm and a summary of the actions taken in response to the alarm. Installations and operations are structured so that more than one person will be involved in reviewing and closing an alarm, thus making it more difficult for a corrupt official to bypass the system. One reason the program does not like single monitor installations – without communications systems, without full site coverage, and without high level support – is that these types of systems are the most vulnerable to corruption. Additionally, SLD planning includes redundant monitors (on both sides of a border) along key pathways to protect against corruption at a single site. In certain countries, the SLD Program will provide the means to send status of health, alarm and other data to central locations within the host country for further oversight and technical assistance. Such systems are under development in Russia and are being deployed in Greece. Based on these experiences, the program will deploy these systems more widely. We have established a methodology for selecting those countries in which the systems will be installed and will ensure that our fiscal planning documents reflect this approach. Programs that help ensure personnel reliability are under consideration for selected countries. We do not believe that the cost of such programs will considerably impact our life-cycle projections.

As to upgrading less sophisticated portal monitors previously installed by other U.S. agencies, we intend to replace these single monitors with full installations as part of our comprehensive country-wide program. In fact, to accelerate this process, we have significantly increased our Fiscal Year (FY) 2007 SLD Core activities Congressional Budget request. We firmly believe that upgrading single monitor installations, except in special circumstances, is not the best use of our resources. Such installations are more likely to be bypassed, to be vulnerable to corruption, and to fall into disuse or misuse because there is no training or sustainability program in place.

Finally, in response to the point made in the report that NNSA has not systematically maintained handheld radiation detection equipment provided by State and other agencies, we believe that the report does not adequately reflect what we have done in this area. We wish to clarify that the SLD maintenance program does in fact have a process in place to identify and replace non-functioning handheld equipment. SLD maintenance teams routinely inquire about the handhelds when performing regular maintenance of portal monitors. Maintenance of handheld equipment is provided whenever possible and units are being replaced on a case-by-case basis. In FY05, NNSA received reports from the maintenance teams that many sites were in need of additional or replacement

handheld detection equipment. In response, we ordered handhelds specifically for this purpose (135 units at a total cost of $386K). These units are being distributed to sites during the FY06 maintenance visits.

NNSA appreciates the efforts of GAO to incorporate changes to the original draft report. These changes clarify issues that are directly related to NNSA. We agree with the recommendations that are contained in the modified draft report and have enclosed our specific comments to those recommendations.

Should you have any questions related to this response, please contact Richard Speidel, NNSA's Director, Policy and Internal Controls Management.

Sincerely,

Michael C. Kane
Associate Administrator
for Management and Administration

Enclosure

cc: Deputy Administrator for Defense Nuclear Nonproliferation
Senior Procurement Executive
Director, Service Center

Comments to
GAO Draft Report, GAO-06-311
"COMBATING NUCLEAR SMUGGLING:
Corruption, Maintenance, and Coordination Problems
Challenge U.S. Efforts to Provide Radiation Detection
Equipment to Other Countries"

Recommendation 1

Integrate projected spending on specific anticorruption measures into the long-term cost estimates for the SLD-Core program.

Management Comment

Concur

NNSA has accomplished a significant portion of this work. We will factor cost estimates for centralized communications systems and personnel reliability programs. Since this is an ongoing effort we believe that NNSA has met the intent of the recommendation.

Recommendation 2

Upgrade less sophisticated portal monitors previously installed by other U.S. agencies where DOE has determined this to be appropriate as soon as possible and include funding to accomplish this in DOE's planning and budgeting process.

Management Comment

Concur

NNSA's plans and programs to upgrade these monitors in full-site installations as part of a country-wide program are captured within NNSA's Planning, Programming, Budgeting and Evaluation process. As such, the funding has been requested to accelerate this process. NNSA believes that we are responsive to the recommendation and have met its intent.

Comments from the Department of State

United States Department of State
Washington, D.C. 20520

FEB 10 2006

Ms. Jacquelyn Williams-Bridgers
Managing Director
International Affairs and Trade
Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548-0001

Dear Ms. Williams-Bridgers:

We appreciate the opportunity to review your draft report, "COMBATING NUCLEAR SMUGGLING: Corruption, Maintenance, and Coordination Problems Challenge U.S. Efforts to Provide Radiation Detection Equipment to Other Countries," GAO Job Code 360560.

The enclosed Department of State comments are provided for incorporation with this letter as an appendix to the final report.

If you have any questions concerning this response, please contact Keith Peterson, Diplomacy Officer, Bureau of International Security and Nonproliferation, at (202) 647-8629.

Sincerely,

S. Kaplan

Sid Kaplan (Acting)

cc: GAO – Stockton Butler
ISN – Donald Mahley
State/OIG – Mark Duda

Department of State Comments on the GAO Draft Report
COMBATING NUCLEAR SMUGGLING: Corruption, Maintenance, and Coordination Problems Challenge U.S. Efforts to Provide Radiation Detection Equipment to Other Countries
(GAO-06-311, GAO Code 360560)

In general, the Department of State concurs with the recommendations and conclusions contained in this report. The Department continues to refine U.S. government efforts to repair and maintain radiation detection equipment where such efforts are cost-effective to do so; agrees that updating the *Strategic Plan for Interagency Coordination of U.S. Government Nuclear Detection Assistance Overseas* with significant input from the National Nuclear Security Administration (NNSA) and other interagency partners would be beneficial; and continues to move forward in creating a comprehensive list of radiation detection equipment provided by the U.S. government overseas. The GAO rightly points to the interagency working groups chaired by the Department as a formal coordinating mechanism, but misses entirely the daily and informal coordinating role played by the Department's front-line country program officers in developing interagency program plans for their countries. The Department would like to emphasize that the primary means of coordination of its efforts concerning radiation detection equipment provision is at the action officer level via interagency contacts and not in formal meetings. It is clear from the evidence provided in this GAO report that the Department's action officers and their interagency and government contractor counterparts have done excellent work coordinating this effort in most areas.

The Department ensures the maintenance of radiation portal monitors based on a Memorandum of Understanding (MOU) with NNSA that stipulates that NNSA will provide repairs and maintenance to all radiation portal monitors provided by the Export Control and Related Border Security (EXBS) and other State programs. The Department is also engaged in ongoing discussions about the upgrading and replacement of obsolescent portal monitors provided in the past by the Department, and concurs with GAO's recommendation in this regard. The Department also has kept abreast of the similar MOU between NNSA and the Department of Defense on the maintenance of portal monitors noted in the GAO report. The Office of Export Control Cooperation (ECC) has during the course of the research and drafting of this report informed GAO of its efforts to develop a maintenance

Department of State Comments on the GAO Draft Report
COMBATING NUCLEAR SMUGGLING: Corruption, Maintenance, and Coordination Problems Challenge U.S. Efforts to Provide Radiation Detection Equipment to Other Countries
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countries, but the Advisors have competing claims on their time, many responsibilities within the program, and limited resources at their disposal. The Department has taken significant steps to strengthen both inventory and maintenance issues recommended by GAO since State assumed direct management of the Advisors program in February 2005. However, the complexity of the inventory and maintenance issue, which includes a vast amount of non-radiation detection equipment, is one with which the Department continues to grapple.

The Department does not concur with the statements and conclusions reached in the section entitled "State Coordinates U.S. Radiation Detection Equipment Assistance Through an Interagency Working Group and In-Country Advisors" because it is incomplete and does not reflect information provided by the Department to GAO in its communication of August 3, 2005 and in personal interviews. In those communications and interviews, the Department indicated that in the provision of radiation detection equipment, various mechanisms are used: the interagency working group, input from Advisors, and also consultations between ECC Country Officers and their interagency counterparts. The Department considers the last element to be the "primary coordination mechanism," rather than the interagency working group as asserted by GAO, because Country Officer interaction with their counterparts at NNSA, CBP, and DoD allow State to coordinate activities on a daily, informal, basis. The current GAO report provides many examples of in-depth, informal, daily coordination that has resulted in successful nonproliferation efforts in the area of provision of radiation detection equipment: a layered approach coordinated between State and NNSA in portal monitor deployment in Armenia and Georgia that accounts for the perceived corruption problems also noted by GAO, exemplifies the advantages of State's flexibility in providing radiation portal monitors when NNSA has trouble getting an agreement in place with the foreign government, and the ability of the EXBS program to move to address threats posed by proliferation networks (see footnote 6 in the GAO report). Another example that GAO provides is the intense coordination and daily activity by Country Officers that made possible the Russian Federal Customs Service Central Command Center, where NNSA provided the portal monitors and landlines to connect to the Center, while EXBS provided many of the other resources necessary to make the Center operational in ways that have the advantages noted in the GAO report. Such coordination, it is worth emphasizing, is intense, daily, and within the scope of the EXBS program, is

much more important that coordination with the interagency working group and/or with the in-country advisors.

The Department believes that substantial progress has been made over the last year in the provision of and coordination of radiation detection equipment. As noted in the GAO report, various providers of equipment and training do work together to create synergies that are important to the success of the mission of the EXBS and other programs. Since assuming management responsibility of the EXBS Advisors program, the Department has made important changes to address some of the concerns expressed in this report, such as requiring Advisors to perform end-use monitoring on specific equipment, including radiation detection equipment. The Department is near completion of a mechanism that will help EXBS better manage the various inventory and maintenance issues, and will revise the *Strategic Plan for Interagency Coordination of U.S. Government Nuclear Detection Assistance Overseas* with our interagency partners. Finally, the Department supports a multi-faceted approach to radiation monitoring, where both equipment provision and cutting edge training is performed while taking into consideration the diverse conditions, levels of technical capacity, and different threat profile posed by the countries in the EXBS program.

Related GAO Products

Combating Nuclear Smuggling: DHS Has Made Progress Deploying Radiation Detection Equipment at U.S. Ports of Entry, but Concerns Remain. GAO-06-389. Washington, D.C.: March 14, 2006.

Combating Nuclear Smuggling: Efforts to Deploy Radiation Detection Equipment in the United States and in Other Countries. GAO-05-840T. Washington, D.C.: June 21, 2005.

Olympic Security: U.S. Support to Athens Games Provides Lessons for Future Olympics. GAO-05-547. Washington, D.C.: May 31, 2005.

Preventing Nuclear Smuggling: DOE Has Made Limited Progress in Installing Radiation Detection Equipment at Highest Priority Foreign Seaports. GAO-05-375. Washington, D.C.: March 31, 2005.

Weapons of Mass Destruction: Nonproliferation Programs Need Better Integration. GAO-05-157. Washington, D.C.: January 28, 2005.

Customs Service: Acquisition and Deployment of Radiation Detection Equipment. GAO-03-235T. Washington, D.C.: October 17, 2002.

Nuclear Nonproliferation: U.S. Efforts to Combat Nuclear Smuggling. GAO-02-989T. Washington, D.C.: July 30, 2002.

Nuclear Nonproliferation: U.S. Efforts to Help Other Countries Combat Nuclear Smuggling Need Strengthened Coordination and Planning. GAO-02-426. Washington, D.C.: May 16, 2002.

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